

**UNDERGROUND INJECTION CONTROL  
PERMIT APPLICATION**

**Ute Tribal # 03-05  
2871' FNL & 752' FWL  
Sec. 3, T5S-R3W  
Duchesne County, Utah  
API # 43-013-34289**

July 2015

Prepared for:  
Bruce Suchomel  
Groundwater Program, Mail Code 8P-W-UIC  
U.S. Environmental Protection Agency  
1595 Wynkoop St  
Denver, CO 80202-1129

Prepared by:  
Petroglyph Energy, INC.  
960 Broadway Avenue, Suite 500, P.O. Box 70019  
Boise, Idaho 83707  
(208) 685-7600  
FAX (208) 685-7605

## **LIST OF ATTACHMENTS**

- Attachment No. 1      Area Topography Map
- Attachment No. 2      Site Map
- Attachment No. 3      Map of the A-Marker surface
- Attachment No. 4      Cross-Sections of the injection formation
- Attachment No. 5      Water Analysis
- Attachment No. 6      Completion data for all wells in the AOR
- Attachment No. 7      CBL for the UIC well
- Attachment No. 8      Open hole log for the UIC well
- Attachment No. 9      List of owners and Affidavit Notification
- Attachment No. 10     Well bore diagrams for the UIC well
- Attachment No. 11     P&A procedure
- Attachment No. 12     MIT procedure
- Attachment No. 13     Surety Bond letter

**SUMMARY DOCUMENT**  
**UIC WELL APPLICATION**  
**Ute Tribal 03-05**  
**API # 43-013-34289**

The following document contains information provided in support of the application for the conversion of the Ute Tribal 03-05 well to an injection well in the Green River formation in the Antelope Creek Field in Duchesne County, Utah.

The Antelope Creek Field falls within the Uintah and Ouray Indian reservations and is within Indian Country; therefore, for facilities located on the reservation, only EPA-issued UIC permits are necessary for compliance with UIC regulations.

The EPA has issued an Area Permit #UT20736-00000 for the Underground Injection Control for the Antelope Creek Field. This area permit allows for additional producing wells to be converted to injection wells for enhanced recovery.

- (1) Petroglyph Energy, Inc. (Petroglyph) is the operator and only working interest owner of wells located in the Antelope creek Field, Duchesne County, Utah. Petroglyph's business address is provided below:

Petroglyph Energy, Inc.  
960 Broadway Avenue, Suite 500  
P.O. Box 70019  
Boise, ID 83707

- (2) Enclosed as Attachment No. 1 is a topographic map of a portion of the Antelope Creek Field, identifying all wells located in this area. The legal location for the Ute Tribal 03-05 is 2871' FNL & 752' FWL Lot 12 Sec. 3, T5S-R3W.
- (3) Attachment No. 2 is a map of the well. This map shows a circle with a ¼ mile radius centered on the Ute Tribal 03-05 well. The ¼ mile radius encompasses the area of review, AOR, within which Petroglyph is required to investigate all wells for mechanical integrity. The ¼ mile radius also identifies mineral ownership; all lands within the AOR are leased to Petroglyph by the Ute Tribal as indicated by yellow shading. The AOR has Ute Tribal 04-08 and Ute Tribal 03-12 well(s) located in its ¼ mile radius.

- (4) Petroglyph proposes to utilize the Ute Tribal 03-05 as an injection well for enhanced recovery in the Antelope Creek Field.
- (5) Injection Zone – The injection intervals are between 4169' and 6150' True Vertical Depth and located in the lower portion of the Green River Formation. The injection zone is confined within a 1981' section between the Green River "A" Lime marker bed and the top of the Basal Carbonate in the lower part of the formation. The injection zone is composed of lenticular calcareous sandstones interbedded with low permeable carbonates and calcareous shales. The lenticular sandstones vary in thickness from 1 to 30 feet.

Confining Zone – The overall confining strata above the injection zone consists of impermeable Green River calcareous shales and continuous beds of microcrystalline dolostone. The confining zone in the Ute Tribal 03-05 is 249 feet thick.

Attachment No. 3 is a structure map of the A-Marker surface.

Attachment No. 4 is a cross-section of the injection interval and confining zone.

- (6) Enclosed as Attachment No. 5 are standard analyses of produced water from three batteries that currently serve as central handling facilities for all project producing wells. The analysis of the Green River formation water from the Ute Tribal 18-08 Satellite Battery is 12805 mg/L of total dissolved solids (TDS), Ute Tribal 21-11 Satellite Battery is 15659 mg/L TDS, and Ute Tribal 34-12-D3 Satellite Battery is 14590 mg/L TDS.

Injectate in the field is a mixture of produced water and fresh make-up water. The nearest injection well is the Ute Tribal 03-14, the most recent analysis of the water being injected into the Green River formation at this location is 6393 mg/L TDS. This analysis is also included in Attachment No. 5.

- (7) A summary of completion data from the Ute Tribal 03-05 and offset wells in the AOR are included in Attachment No. 6
- (8) The cement bond log is included in Attachment No. 7.
- (9) The open hole log for the Ute Tribal 03-05 is included in Attachment No. 8.

- (10) The Antelope Creek Field is operated under a Cooperative Plan of Development between the Ute Tribe and Petroglyph Energy. At the Ute Tribal 03-05 location, all mineral owners, surface owners and operators located within the AOR ¼ mile radius have been notified of the submitted EPA application to convert to injection. Attachment No. 9 is the Affidavit of Notification to all owners.
- (11) Petroglyph requests a maximum surface injection pressure of **1900psi**. The EPA Area Permit No. UT20736-00000 uses the formula:

$$P_m = (0.88 \text{psi}/\text{ft} - 0.43 \text{psi}/\text{ft}(S_g)) D$$

Where:

$P_m$  = Maximum surface injection pressure

0.88psi/ft = Fracture gradient

D = Top perforation depth

0.43psi/ft = Hydrostatic pressure/hydraulic head

$S_g$  = Specific gravity of injection fluid

For the Ute Tribal 03-05:

$$1958 \text{psi} = (0.88 \text{psi}/\text{ft} - 0.43(1.00)) 4351 \text{ft}$$

EPA Area Permit No. 20736-00000 further caps maximum surface pressure at 1900psi.

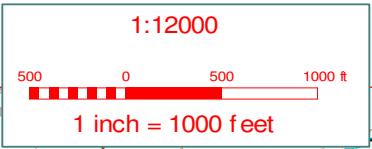
- (12) Three wellbore diagrams for the Ute Tribal 03-05 are in Attachment No. 10. One diagram is for production, one for injection, and one for Plug & Abandonment (P&A).
- (13) The P&A procedure for this well is shown in Attachment No. 11.
- (14) Once the draft permit is issued, Petroglyph will conduct a Mechanical Integrity Test and a static bottom-hole pressure test. The MIT procedure is contained in Attachment No. 12. The conversion work will be satisfactorily completed and submitted to the EPA on Form 7520-12. A wellbore schematic will be included with this form.

- (15) Petroglyph will give proof of financial responsibility by posting a surety bond for the UIC well prior to final permit approval. A copy of this letter is contained in Attachment No. 13.
- (16) Petroglyph will install various gauges on the well so that the injection pressure and tubing/casing annulus pressure can be monitored. The well will be equipped with a flow meter with a cumulative volume recorder.

ATTACHMENT NO. 1

AREA MAP

ATTACHMENT NO. 1:  
AREA MAP



- Producing Oil Well
- Injection Well
- Injection Well, waiting on water
- PTPI
- D & A
- Waiting on Completion
- TA
- SI
- Injector Shut In
- P & A
- Shut In Gas Well



ANTELOPE CREEK

DUCHESNE COUNTY, UTAH

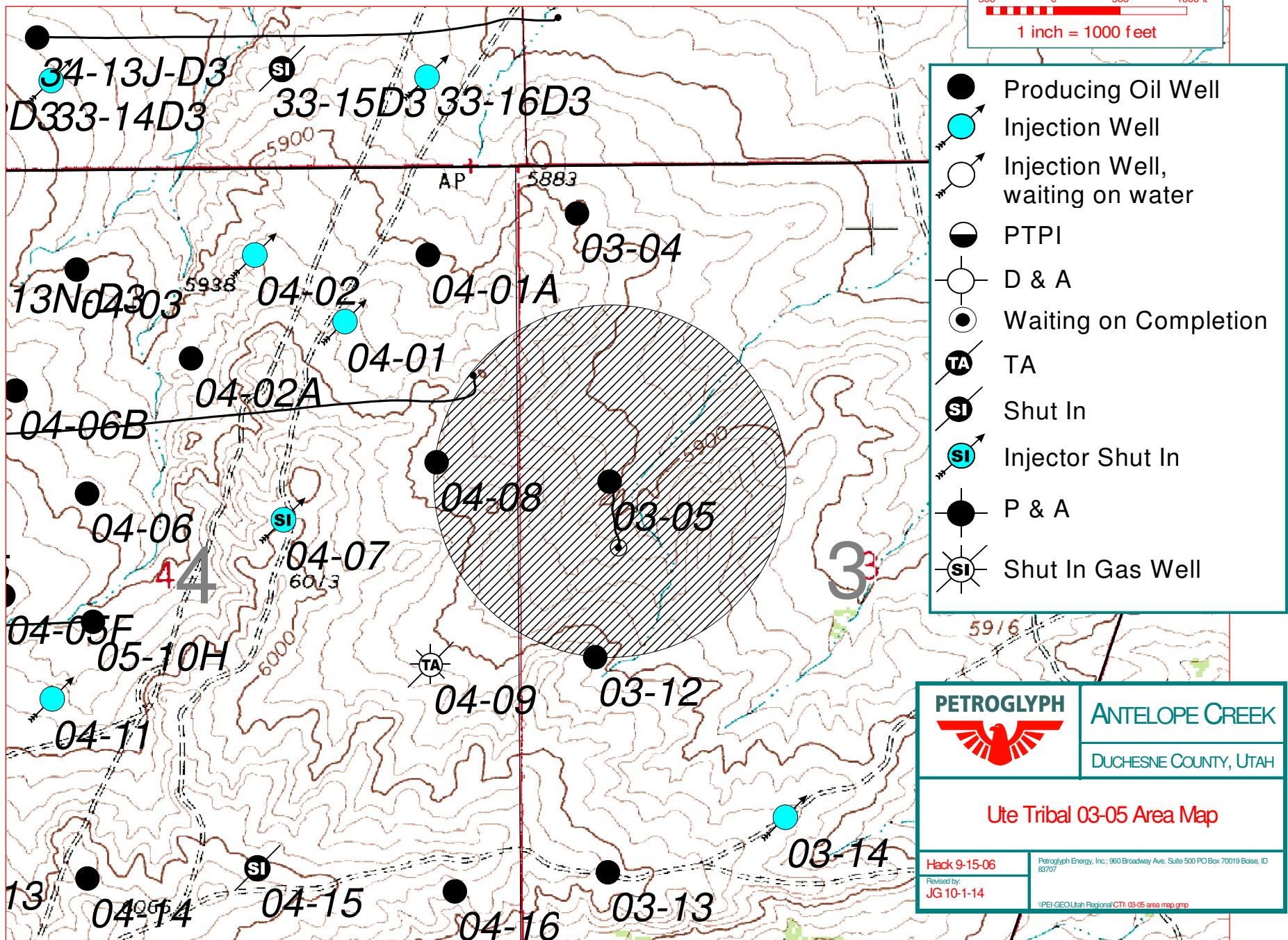
Ute Tribal 03-05 Area Map

Hack 9-15-06

Revised by:  
JG 10-1-14

Petroglyph Energy, Inc., 960 Broadway Ave. Suite 500 PO Box 70019 Boise, ID 83707

\P&I-GEO.Utah Regional\CTI\03-05 area map.grp



ATTACHMENT NO. 2

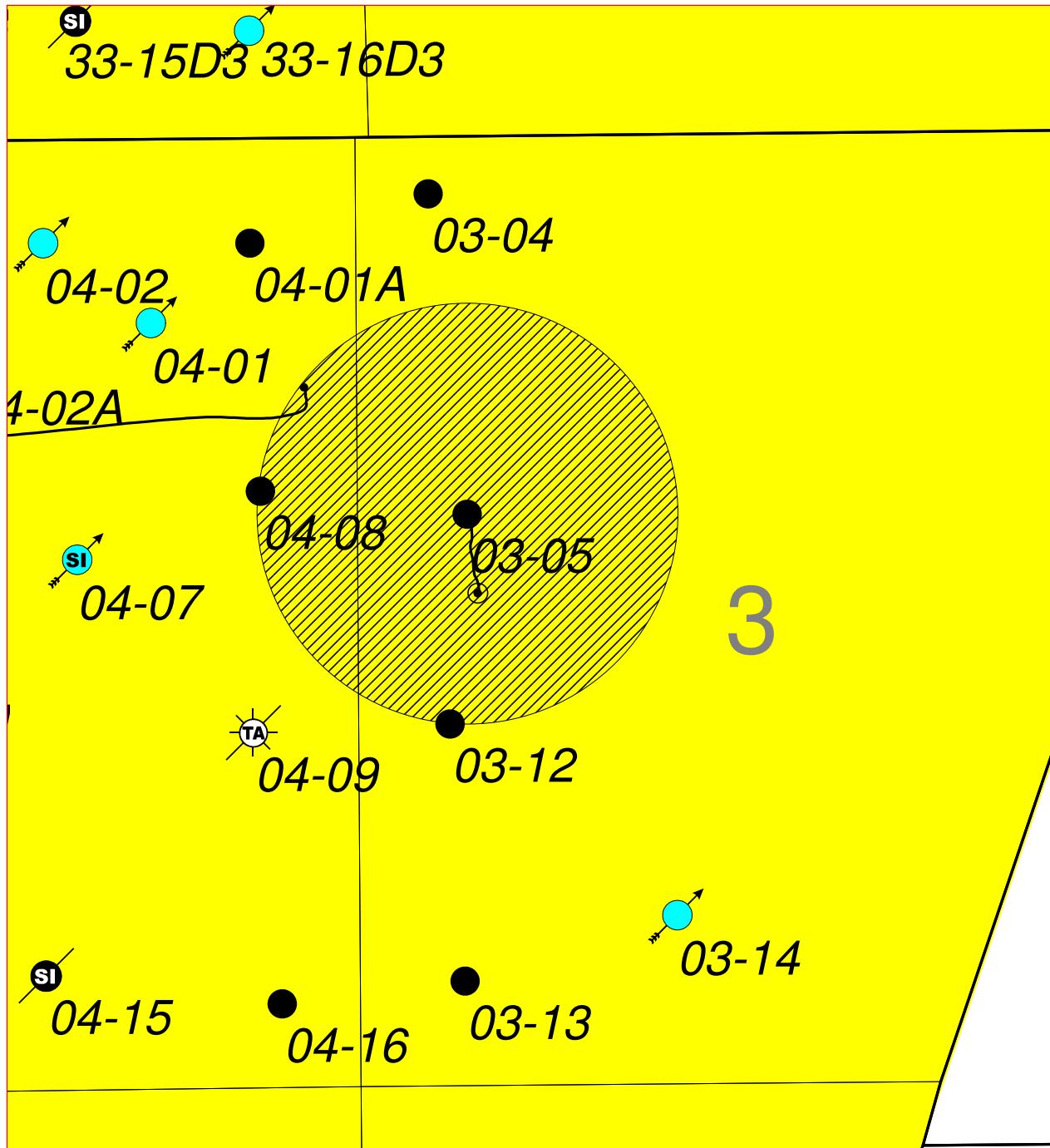
SITE MAP

RADIUS MAP OF ADJACENT WELLS

ATTACHMENT NO. 2:  
SITE MAP

1:12000

500 0 500 1000 ft  
1 inch = 1000 feet



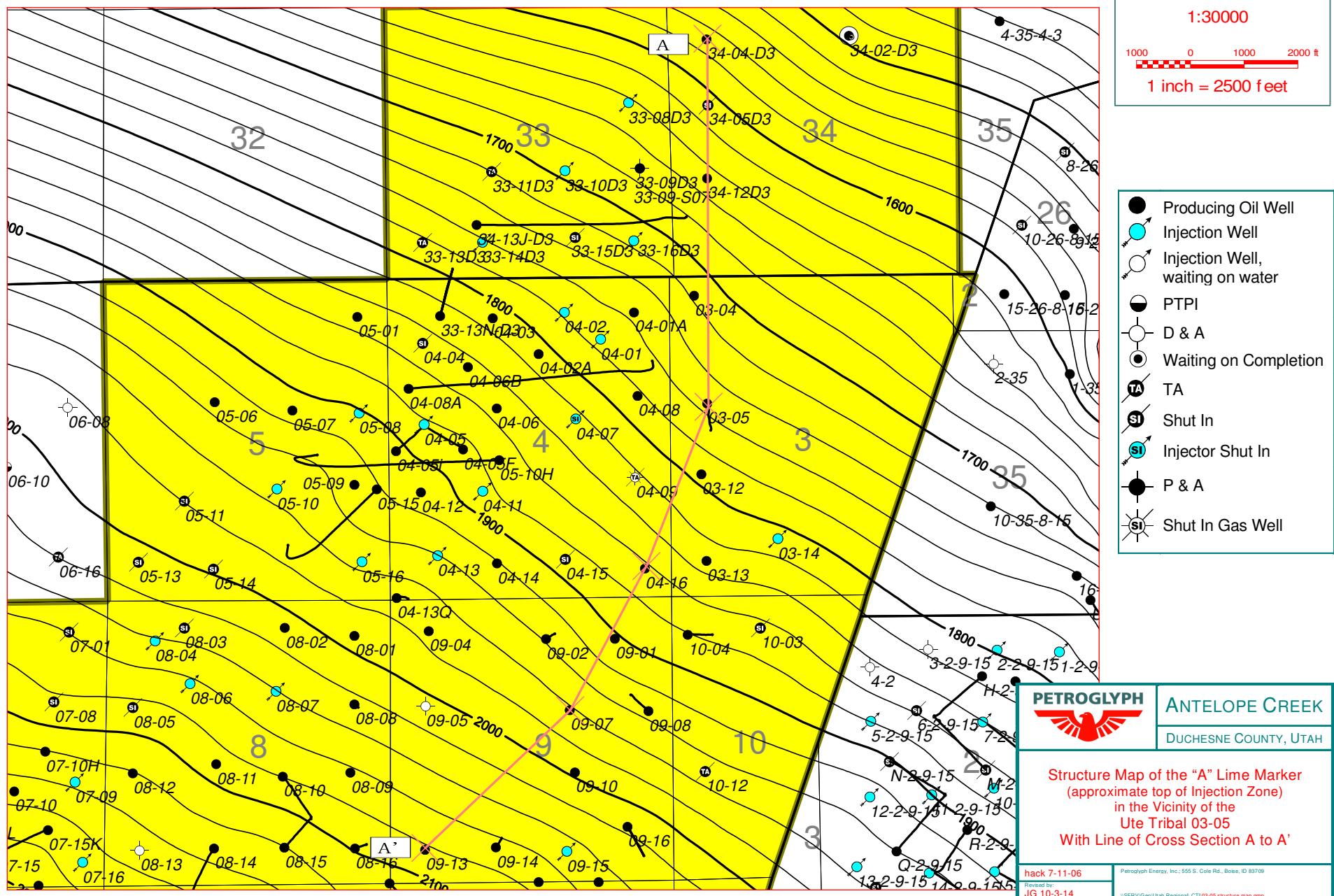
- |  |                                     |
|--|-------------------------------------|
|  | Producing Oil Well                  |
|  | Injection Well                      |
|  | Injection Well,<br>waiting on water |
|  | PTPI                                |
|  | D & A                               |
|  | Waiting on Completion               |
|  | TA                                  |
|  | Shut In                             |
|  | Injector Shut In                    |
|  | P & A                               |
|  | Shut In Gas Well                    |

	PETROGLYPH	ANTELOPE CREEK
		DUCHESNE COUNTY, UTAH
Ute Tribal 03-05 Plat and Quarter-mile radius map. Ute Indian lands under Petroglyph lease shown in yellow		
Hack 9-15-06		Petroglyph Energy, Inc., 960 Broadway Ave. Suite 500 PO Box 70019 Boise, ID 83707
Revised by: JG 8-29-14		UPEI-GEO-Utah Regional/CTI: 03-05 quarter mile map.gmp

**ATTACHMENT NO. 3**

**MAP OF THE A-LIME MARKER SURFACE**

ATTACHMENT NO. 3:  
Map of the "A" Lime Marker



**ATTACHMENT NO. 4**

**CROSS SECTIONS OF THE INJECTION FORMATION**

# Structural Cross Section A to A' in the Vicinity of Ute Tribal 03-05

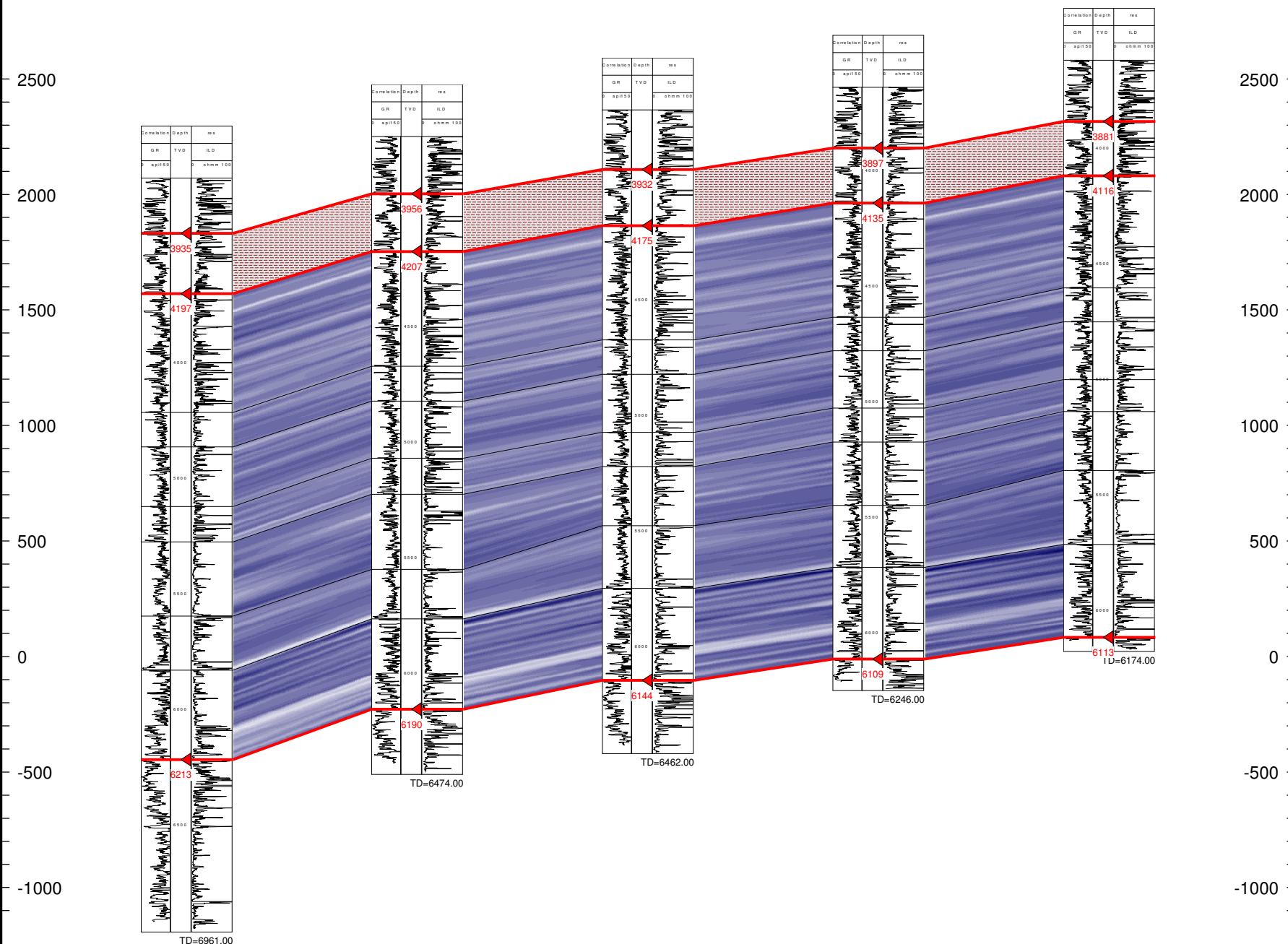
43013515540000  
 ● ←  
 PETROGLYPH OPERATING COMPANY  
 UTE TRIBAL 34-04-D3  
 660 FNL 762 FWL  
 TWP: 4 S - Range: 3 W - Sec. 34

6852 ft      43013342890000      3186 ft      43013512130000      3035 ft      43013515210000      3722 ft      43013511990000  
 → ●  
 PETROGLYPH OPERATING COMPANY INC  
 UTE TRIBAL 03-05  
 2871 FNL 752 FWL  
 TWP: 5 S - Range: 3 W - Sec. 3

PETROGLYPH OPERATING COMPANY  
 UTE TRIBAL 04-16  
 589 FSL 480 FEL  
 TWP: 5 S - Range: 3 W - Sec. 4

PETROGLYPH OPERATING COMPANY  
 UTE TRIBAL 09-07  
 2087 FNL 1910 FEL  
 TWP: 5 S - Range: 3 W - Sec. 9

PETROGLYPH OPERATING COMPANY  
 UTE TRIBAL 09-13  
 650 FSL 657 FWL  
 TWP: 5 S - Range: 3 W - Sec. 9



**ATTACHMENT NO. 5**

**WATER ANALYSIS**

## Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS  
 Well Name: UTE TRIBAL 18-08 SATELLITE, DUCHESN  
 Sample Point: PLANT DISCHARGE COMPLETE  
 Sample Date: 4/21/2015  
 Sample ID: WA-307075

Sales Rep: James Patry  
 Lab Tech: Gary Winegar

Scaling potential predicted using ScaleSoftPitzer from  
 Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	4/21/2015
System Temperature 1 (°F):	60.00
System Pressure 1 (psig):	14.70
System Temperature 2 (°F):	180.00
System Pressure 2 (psig):	2000.00
Calculated Density (g/ml):	1.0061
pH:	8.50
Calculated TDS (mg/L):	12805.08
CO <sub>2</sub> in Gas (%):	
Dissolved CO <sub>2</sub> (mg/L):	0.00
H <sub>2</sub> S in Gas (%):	
H <sub>2</sub> S in Water (mg/L):	0.00

Analysis @ Properties in Sample Specifics			
Cations	mg/L	Anions	mg/L
Sodium (Na):	4541.75	Chloride (Cl):	6000.00
Potassium (K):	41.78	Sulfate (SO <sub>4</sub> ):	163.00
Magnesium (Mg):	28.63	Bicarbonate (HCO <sub>3</sub> ):	1952.00
Calcium (Ca):	67.44	Carbonate (CO <sub>3</sub> ):	
Strontium (Sr):	5.41	Acetic Acid (CH <sub>3</sub> COO):	
Barium (Ba):	0.90	Propionic Acid (C <sub>2</sub> H <sub>5</sub> COO):	
Iron (Fe):	2.74	Butanoic Acid (C <sub>3</sub> H <sub>7</sub> COO):	
Zinc (Zn):	1.29	Isobutyric Acid ((CH <sub>3</sub> ) <sub>2</sub> CHCOO):	
Lead (Pb):	0.05	Fluoride (F):	
Ammonia NH <sub>3</sub> :		Bromine (Br):	
Manganese (Mn):	0.09	Silica (SiO <sub>2</sub> ):	

## Notes:

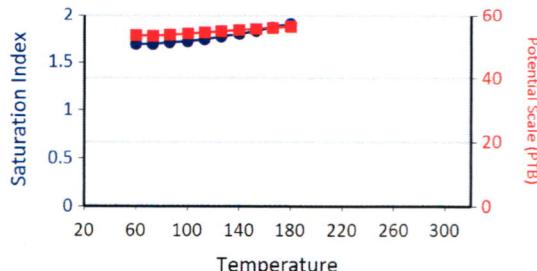
(PTB = Pounds per Thousand Barrels)

Temp (°F)	PSI	Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO <sub>4</sub> ·2H <sub>2</sub> O		Celestite SrSO <sub>4</sub>		Halite NaCl		Zinc Sulfide	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	1.91	56.41	0.09	0.09	0.00	0.00	2.59	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	1.87	56.05	0.13	0.14	0.00	0.00	2.54	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	1.83	55.66	0.19	0.19	0.00	0.00	2.49	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	1.80	55.27	0.26	0.24	0.00	0.00	2.44	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	1.77	54.86	0.33	0.29	0.00	0.00	2.38	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	1.74	54.46	0.42	0.33	0.00	0.00	2.32	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	1.72	54.08	0.52	0.38	0.00	0.00	2.26	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	1.71	53.72	0.64	0.41	0.00	0.00	2.20	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	1.69	53.39	0.77	0.45	0.00	0.00	2.14	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	1.69	53.56	0.92	0.47	0.00	0.00	2.08	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

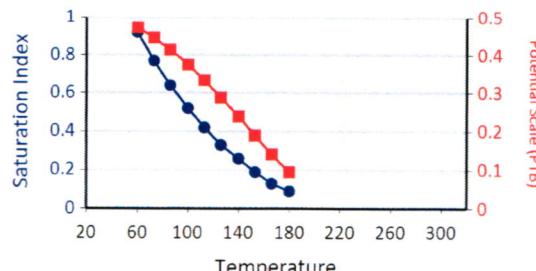
Temp (°F)	PSI	Hemihydrate CaSO <sub>4</sub> ·0.5H <sub>2</sub> O		Anhydrate CaSO <sub>4</sub>		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	0.00	0.00	0.00	0.00	0.00	0.00	2.09	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	0.00	0.00	0.00	0.00	0.00	0.00	1.83	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	0.00	0.00	0.00	0.00	0.00	0.00	1.69	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	0.00	0.00	0.00	0.00	0.00	0.00	1.53	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	0.00	0.00	0.00	0.00	0.00	0.00	1.37	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	0.00	0.00	0.00	0.00	0.00	0.00	1.19	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Water Analysis Report

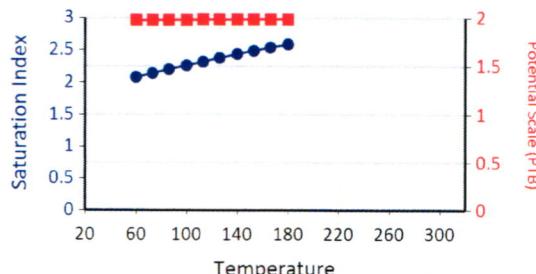
Calcium Carbonate



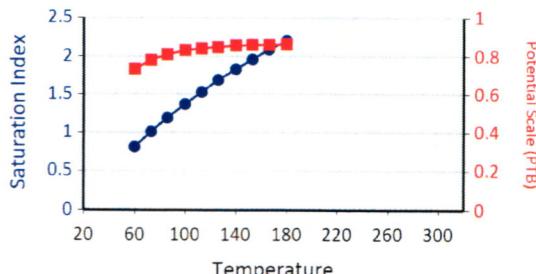
Barium Sulfate



Iron Carbonate



Zinc Carbonate



## Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS  
 Well Name: UTE TRIBAL 21-11 SATELLITE, DUCHESNE  
 Sample Point: PLANT DISCHARGE COMPLETE  
 Sample Date: 4/21/2015  
 Sample ID: WA-307071

Sales Rep: James Patry  
 Lab Tech: Gary Winegar

Scaling potential predicted using ScaleSoftPitzer from  
 Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics											
Test Date:	4/21/2015	Cations				mg/L				Anions			
System Temperature 1 (°F):	60.00	Sodium (Na):				5585.76	Chloride (Cl):						7000.00
System Pressure 1 (psig):	14.70	Potassium (K):				55.43	Sulfate (SO <sub>4</sub> ):						277.00
System Temperature 2 (°F):	180.00	Magnesium (Mg):				10.62	Bicarbonate (HCO <sub>3</sub> ):						2684.00
System Pressure 2 (psig):	2000.00	Calcium (Ca):				30.52	Carbonate (CO <sub>3</sub> ):						
Calculated Density (g/ml):	1.0081	Strontium (Sr):				6.47	Acetic Acid (CH <sub>3</sub> COO):						
pH:	8.70	Barium (Ba):				1.02	Propionic Acid (C <sub>3</sub> H <sub>5</sub> COO):						
Calculated TDS (mg/L):	15659.01	Iron (Fe):				1.09	Butanoic Acid (C <sub>3</sub> H <sub>7</sub> COO):						
CO <sub>2</sub> in Gas (%):		Zinc (Zn):				6.88	Isobutyric Acid ((CH <sub>3</sub> ) <sub>2</sub> CHCOO):						
Dissolved CO <sub>2</sub> (mg/L):	0.00	Lead (Pb):				0.08	Fluoride (F):						
H <sub>2</sub> S in Gas (%):		Ammonia NH <sub>3</sub> :					Bromine (Br):						
H <sub>2</sub> S in Water (mg/L):	35.00	Manganese (Mn):				0.14	Silica (SiO <sub>2</sub> ):						

## Notes:

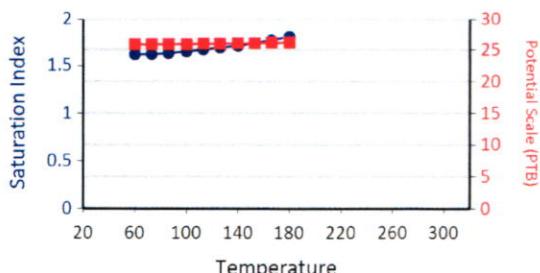
(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO <sub>4</sub> -2H <sub>2</sub> O		Celestite SrSO <sub>4</sub>		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	1.81	26.18	0.28	0.29	3.60	0.60	2.44	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.37	3.59
166	1779	1.77	26.13	0.33	0.32	3.61	0.60	2.40	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.52	3.59
153	1558	1.74	26.09	0.39	0.36	3.63	0.60	2.35	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.68	3.59
140	1338	1.71	26.05	0.45	0.39	3.67	0.60	2.30	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.86	3.59
126	1117	1.69	26.00	0.53	0.43	3.72	0.60	2.25	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.05	3.59
113	897	1.67	25.97	0.62	0.46	3.79	0.60	2.20	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.27	3.59
100	676	1.65	25.93	0.72	0.49	3.87	0.60	2.14	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.50	3.59
86	455	1.63	25.91	0.84	0.52	3.97	0.60	2.08	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.76	3.59
73	235	1.62	25.88	0.97	0.54	4.09	0.60	2.02	0.79	0.00	0.00	0.00	0.00	0.00	0.00	13.04	3.59
60	14	1.62	25.87	1.12	0.56	4.23	0.60	1.96	0.79	0.00	0.00	0.00	0.00	0.00	0.00	13.34	3.59

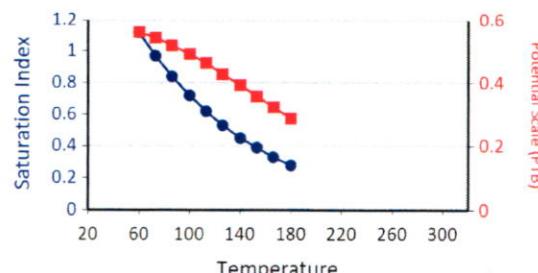
		Hemihydrate CaSO <sub>4</sub> *0.5H <sub>2</sub> O		Anhydrate CaSO <sub>4</sub>		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	0.00	0.00	0.00	0.00	0.00	0.00	3.15	4.62	10.72	0.03	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	0.00	0.00	0.00	0.00	0.00	0.00	3.04	4.62	10.97	0.03	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	0.00	0.00	0.00	0.00	0.00	0.00	2.92	4.62	11.24	0.03	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	0.00	0.00	0.00	0.00	0.00	0.00	2.79	4.62	11.54	0.03	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	0.00	0.00	0.00	0.00	0.00	0.00	2.65	4.62	11.86	0.03	0.00	0.00	0.00	0.00	0.00	0.00
113	897	0.00	0.00	0.00	0.00	0.00	0.00	2.50	4.61	12.21	0.03	0.00	0.00	0.00	0.00	0.00	0.00
100	676	0.00	0.00	0.00	0.00	0.00	0.00	2.34	4.61	12.60	0.03	0.00	0.00	0.00	0.00	0.00	0.00
86	455	0.00	0.00	0.00	0.00	0.00	0.00	2.17	4.60	13.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00
73	235	0.00	0.00	0.00	0.00	0.00	0.00	1.99	4.58	13.46	0.03	0.00	0.00	0.00	0.00	0.00	0.00
60	14	0.00	0.00	0.00	0.00	0.00	0.00	1.79	4.55	13.95	0.03	0.00	0.00	0.00	0.00	0.00	0.00

Water Analysis Report

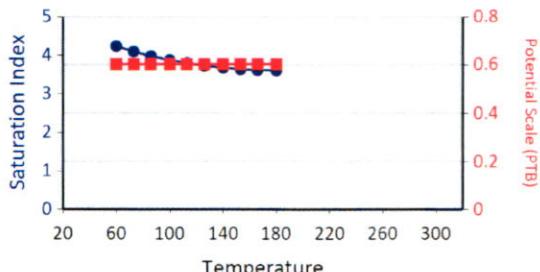
Calcium Carbonate



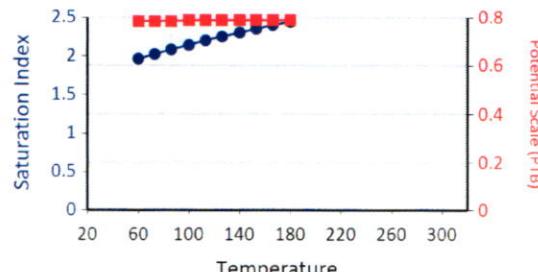
Barium Sulfate



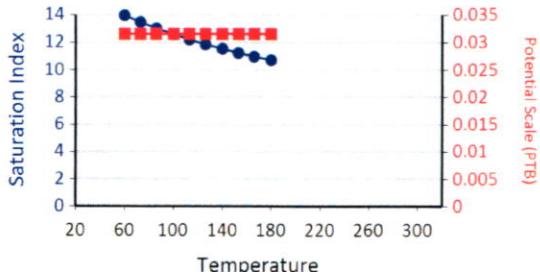
Iron Sulfide



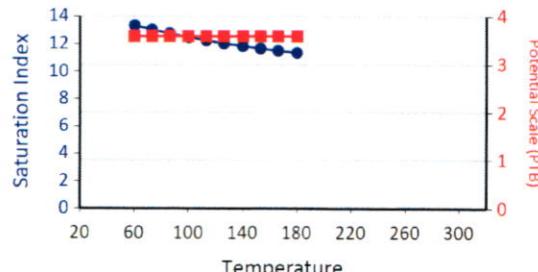
Iron Carbonate



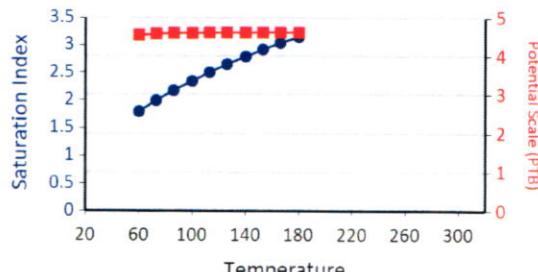
Lead Sulfide



Zinc Sulfide



Zinc Carbonate



## Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS  
 Well Name: UTE TRIBAL 34-12D3 SATELLITE, DUCHE  
 Sample Point: PLANT DISCHARGE  
 Sample Date: 4/21/2015  
 Sample ID: WA-307067

Sales Rep: James Patry  
 Lab Tech: Gary Winegar

Scaling potential predicted using ScaleSoftPitzer from  
 Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	4/21/2015
System Temperature 1 (°F):	60.00
System Pressure 1 (psig):	14.70
System Temperature 2 (°F):	180.00
System Pressure 2 (psig):	2000.00
Calculated Density (g/ml):	1.0073
pH:	8.50
Calculated TDS (mg/L):	14589.98
CO2 in Gas (%):	
Dissolved CO2 (mg/L):	0.00
H2S in Gas (%):	
H2S in Water (mg/L):	0.00

Analysis @ Properties in Sample Specifics			
Cations	mg/L	Anions	mg/L
Sodium (Na):	5277.36	Chloride (Cl):	7000.00
Potassium (K):	65.03	Sulfate (SO4):	0.00
Magnesium (Mg):	7.80	Bicarbonate (HCO3):	2196.00
Calcium (Ca):	24.60	Carbonate (CO3):	
Strontium (Sr):	5.20	Acetic Acid (CH3COO):	
Barium (Ba):	12.37	Propionic Acid (C2H5COO):	
Iron (Fe):	0.34	Butanoic Acid (C3H7COO):	
Zinc (Zn):	1.16	Isobutyric Acid ((CH3)2CHCOO):	
Lead (Pb):	0.04	Fluoride (F):	
Ammonia NH3:		Bromine (Br):	
Manganese (Mn):	0.08	Silica (SiO2):	

## Notes:

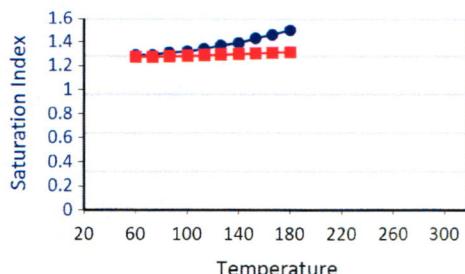
(PTB = Pounds per Thousand Barrels)

Temp (°F)	PSI	Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	1.50	20.58	0.00	0.00	0.00	0.00	1.72	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	1.46	20.48	0.00	0.00	0.00	0.00	1.67	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	1.43	20.39	0.00	0.00	0.00	0.00	1.63	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	1.39	20.30	0.00	0.00	0.00	0.00	1.57	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	1.37	20.21	0.00	0.00	0.00	0.00	1.52	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	1.34	20.13	0.00	0.00	0.00	0.00	1.46	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	1.32	20.05	0.00	0.00	0.00	0.00	1.40	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	1.31	19.99	0.00	0.00	0.00	0.00	1.34	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	1.29	19.93	0.00	0.00	0.00	0.00	1.28	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	1.29	19.93	0.00	0.00	0.00	0.00	1.22	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

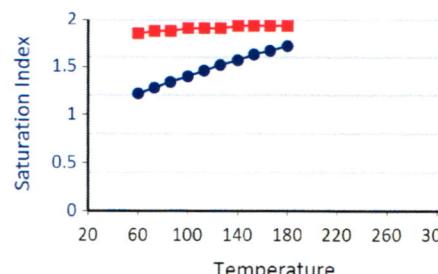
Temp (°F)	PSI	Hemihydrate CaSO4·0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	0.00	0.00	0.00	0.00	0.00	0.00	2.16	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	0.00	0.00	0.00	0.00	0.00	0.00	1.93	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	0.00	0.00	0.00	0.00	0.00	0.00	1.65	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	0.00	0.00	0.00	0.00	0.00	0.00	1.17	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	0.00	0.00	0.00	0.00	0.00	0.79	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Water Analysis Report

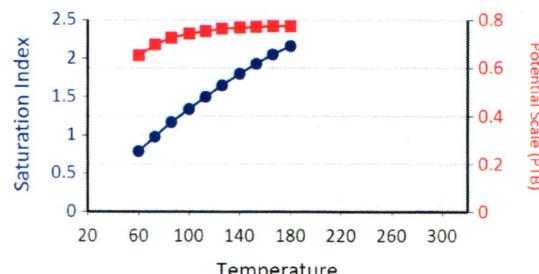
Calcium Carbonate



Iron Carbonate



Zinc Carbonate



**Water Analysis Report**

Production Company: PETROGLYPH OPERATING CO INC - EBUS

Well Name: UTE TRIBAL 03-14 INJ, DUCHESNE

Sample Point: WELLHEAD

Sample Date: 1/7/2015

Sample ID: WA-297463

Sales Rep: James Patry

Lab Tech: Gary Winegar

Scaling potential predicted using ScaleSoftPitzer from  
Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics									
		Cations				mg/L		Anions			
Test Date:	1/14/2015	Sodium (Na):				1924.68		Chloride (Cl):			3000.00
System Temperature 1 (°F):	160	Potassium (K):				31.43		Sulfate (SO4):			166.00
System Pressure 1 (psig):	1300	Magnesium (Mg):				47.40		Bicarbonate (HCO3):			1098.00
System Temperature 2 (°F):	80	Calcium (Ca):				83.24		Carbonate (CO3):			
System Pressure 2 (psig):	15	Strontium (Sr):				4.12		Acetic Acid (CH3COO):			
Calculated Density (g/ml):	1.0016	Barium (Ba):				3.59		Propionic Acid (C2H5COO):			
pH:	8.30	Iron (Fe):				7.03		Butanoic Acid (C3H7COO):			
Calculated TDS (mg/L):	6392.90	Zinc (Zn):				5.16		Isobutyric Acid ((CH3)2CHCOO):			
CO2 in Gas (%):		Lead (Pb):				0.00		Fluoride (F):			
Dissolved CO2 (mg/L):	0.00	Ammonia NH3:						Bromine (Br):			
H2S in Gas (%):		Manganese (Mn):				0.09		Silica (SiO2):			22.16
H2S in Water (mg/L):	10.00										

**Notes:**

B=3.55 Al=0 Li=1.1

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	1.50	51.14	1.59	2.08	3.98	3.88	2.26	5.08	0.00	0.00	0.00	0.00	0.00	0.00	12.03	2.70
88.00	157.00	1.49	49.38	1.51	2.07	3.89	3.88	2.28	5.08	0.00	0.00	0.00	0.00	0.00	0.00	11.84	2.70
97.00	300.00	1.51	50.35	1.43	2.06	3.83	3.88	2.33	5.08	0.00	0.00	0.00	0.00	0.00	0.00	11.68	2.70
106.00	443.00	1.53	51.38	1.36	2.04	3.78	3.88	2.38	5.09	0.00	0.00	0.00	0.00	0.00	0.00	11.52	2.70
115.00	585.00	1.55	52.47	1.30	2.03	3.74	3.88	2.42	5.09	0.00	0.00	0.00	0.00	0.00	0.00	11.38	2.70
124.00	728.00	1.57	53.61	1.24	2.02	3.70	3.88	2.47	5.09	0.00	0.00	0.00	0.00	0.00	0.00	11.25	2.70
133.00	871.00	1.59	54.78	1.19	2.00	3.67	3.88	2.51	5.09	0.00	0.00	0.00	0.00	0.00	0.00	11.12	2.70
142.00	1014.00	1.62	55.97	1.14	1.98	3.65	3.88	2.56	5.10	0.00	0.00	0.00	0.00	0.00	0.00	11.01	2.70
151.00	1157.00	1.65	57.17	1.10	1.97	3.64	3.88	2.60	5.10	0.00	0.00	0.00	0.00	0.00	0.00	10.90	2.70
160.00	1300.00	1.68	58.37	1.06	1.95	3.63	3.88	2.64	5.10	0.00	0.00	0.00	0.00	0.00	0.00	10.80	2.70

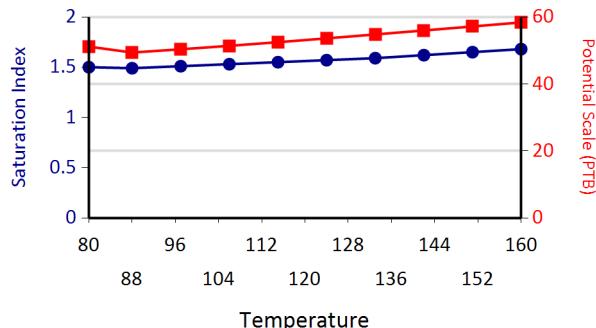
		Hemihydrate CaSO4·0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	3.34	0.00	0.00	1.88	8.13	0.72	3.36	7.97	5.44
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57	3.36	0.00	0.00	2.11	8.59	0.82	3.62	8.04	5.44
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70	3.39	0.00	0.00	2.48	10.18	1.02	4.45	8.25	5.44
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	3.41	0.00	0.00	2.87	11.86	1.23	5.30	8.48	5.45
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	3.42	0.00	0.00	3.26	13.61	1.44	6.17	8.72	5.45
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03	3.43	0.00	0.00	3.65	15.44	1.66	7.04	8.97	5.45
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14	3.44	0.00	0.00	4.04	17.29	1.88	7.92	9.23	5.46
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	2.24	3.45	0.00	0.00	4.44	19.14	2.10	8.77	9.49	5.46
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	2.33	3.45	0.00	0.00	4.84	20.89	2.32	9.59	9.75	5.46
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	3.46	0.00	0.00	5.24	22.48	2.54	10.36	10.03	5.46

## Water Analysis Report

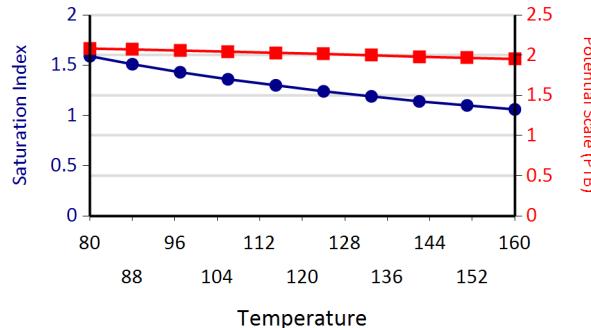
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

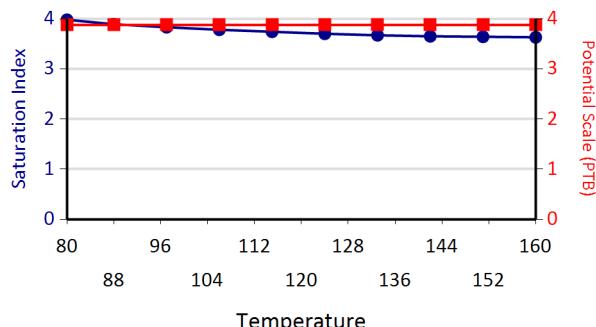
Calcium Carbonate



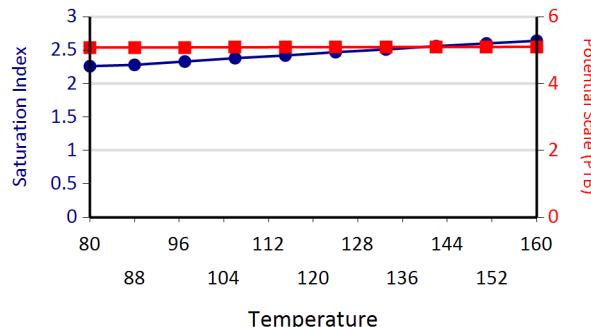
Barium Sulfate



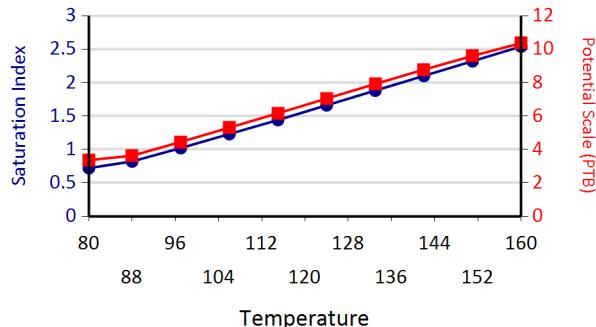
Iron Sulfide



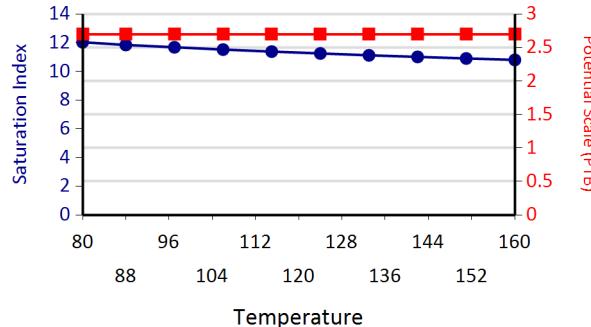
Iron Carbonate



Ca Mg Silicate

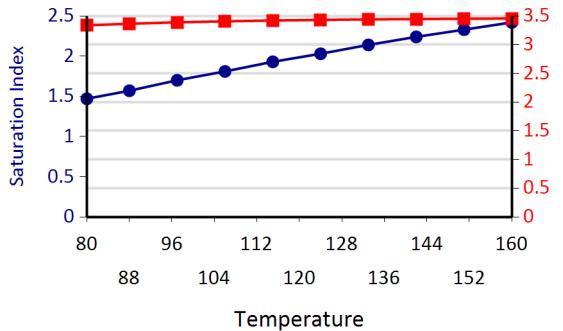


Zinc Sulfide

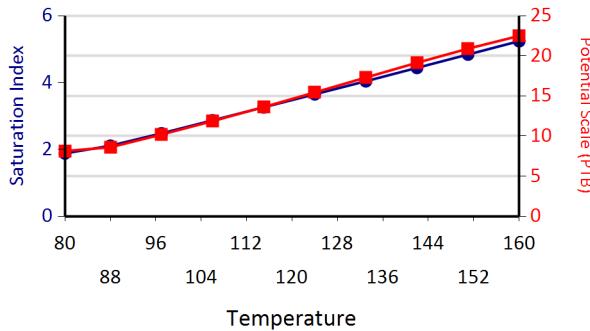


Water Analysis Report

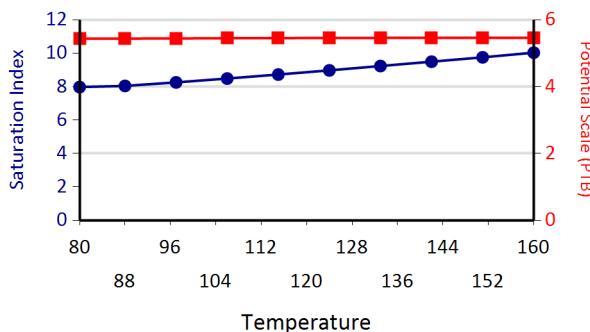
Zinc Carbonate



Mg Silicate



Fe Silicate



**ATTACHMENT NO. 6**

**COMPLETION DATA FOR ALL WELLS IN THE AOR**

## Well Completion Data

### Ute Tribal 03-05

Well	Surface Casing				Production Casing			
	Size (inches)	Depth (ft KB)	Cement Amount (sx)	Cement Top	Size (inches)	Depth (ft KB)	Cement Amount (sx)	Estimated Cement Top
<b>Ute Tribal 03-05</b>	<b>8-5/8</b>	<b>512</b>	<b>220</b>	<b>surface</b>	<b>5-1/2</b>	<b>6472</b>	<b>1105</b>	<b>surface</b>
Ute Tribal 03-12	8-5/8	251	150	surface	5-1/2	5963	480	2290
Ute Tribal 04-08	8-5/8	254	150	surface	5-1/2	6462	502	2560

**ATTACHMENT NO. 7**

**CBL FOR THE UIC WELL**

# CASED HOLE SOLUTIONS

CEMENT  
BOND  
LOG

Company	PETROGLYPH OPERATING COMPANY		
Well	UTE TRIBAL 03-05		
Field	ANTELOPE CREEK		
County	DUCHESENE	State	UTAH
Location:	API #: 43013342390000 SUNNYSIDE 2371' FNL & 752' FWL		
	SEC 3	TWP 5S	RGE 3WY
Date	7-3-10		
Run Number	ONE		
Depth Driller	6474		
Depth Logger	6405		
Bottom Logged Interval	6395		
Top Log Interval	100'		
Open Hole Size	N/A		
Type Fluid	WATER		
Density / Viscosity	N/A		
Max. Recorded Temp.	156.0°F		
Estimated Cement Top	160		
Time Well Ready	—		
Time Logger on Bottom	—		
Equipment Number	112		
Location	VERNAL		
Recorded By	BRAD ERICKSTREET		
Witnessed By	LEON ROUSH		
Run Number	Bit	From	To
Casing Record	Size	Mat/Ft	Top
Surface String			Bottom
Prot. String	5.5"		
Production String	15.5"	SURFACE	P.B.D.
Liner			

Fold Here

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

CORRELATED TO HALLIBURTON DENSITY LOG DATED 7-5-10  
SHORT JOINT 3782-3804

**CASED HOLE**

MAIN PASS "O" PSI

# SOLUTIONS

# MAIN PASS 0 F3I

Database File: v-2455.db

Dataset Pathname: pass3

Presentation Format: v-2455.cbl

Dataset Creation: Tue Jan 01 00:47:30 2002 by Log Std Casedhole 09061

Charted by: Depth in Feet scaled 1:240

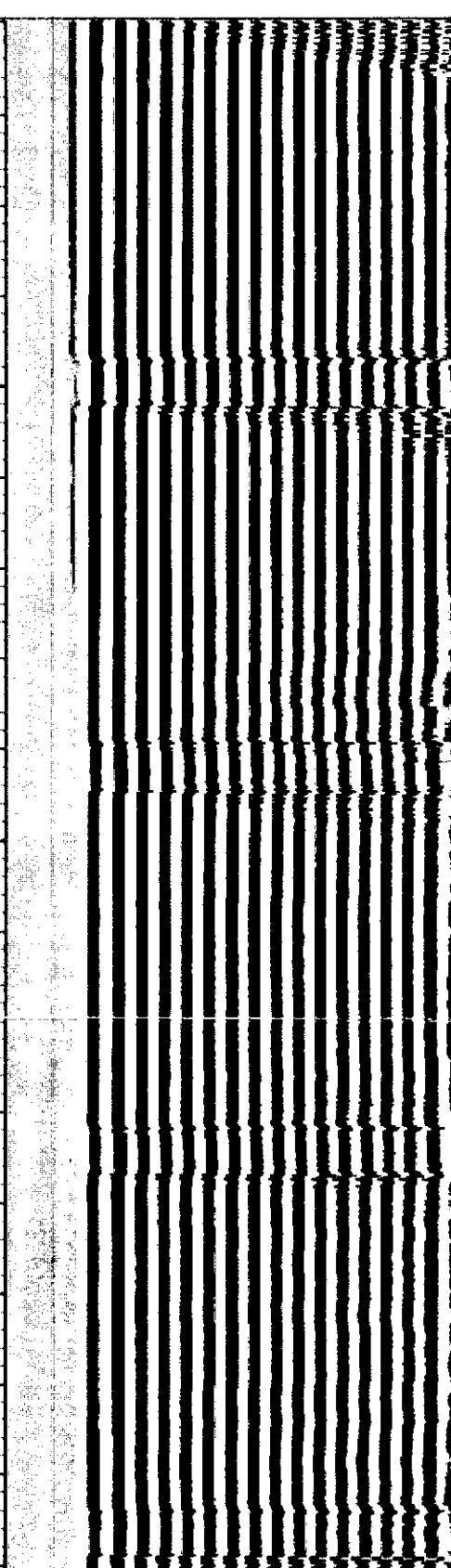
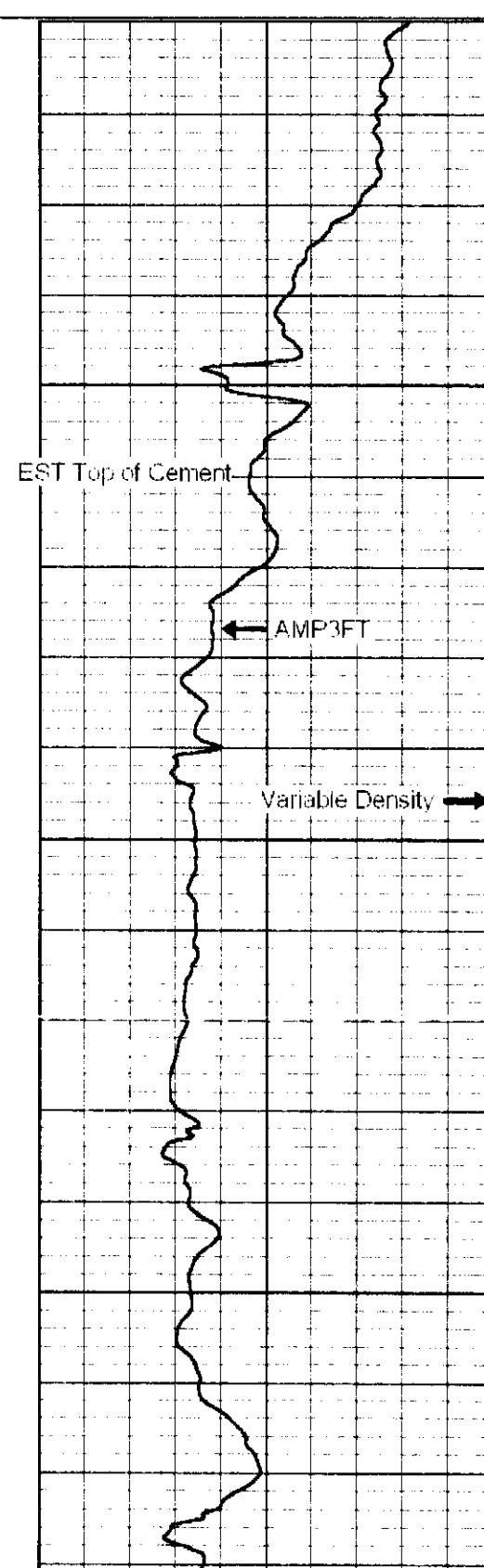
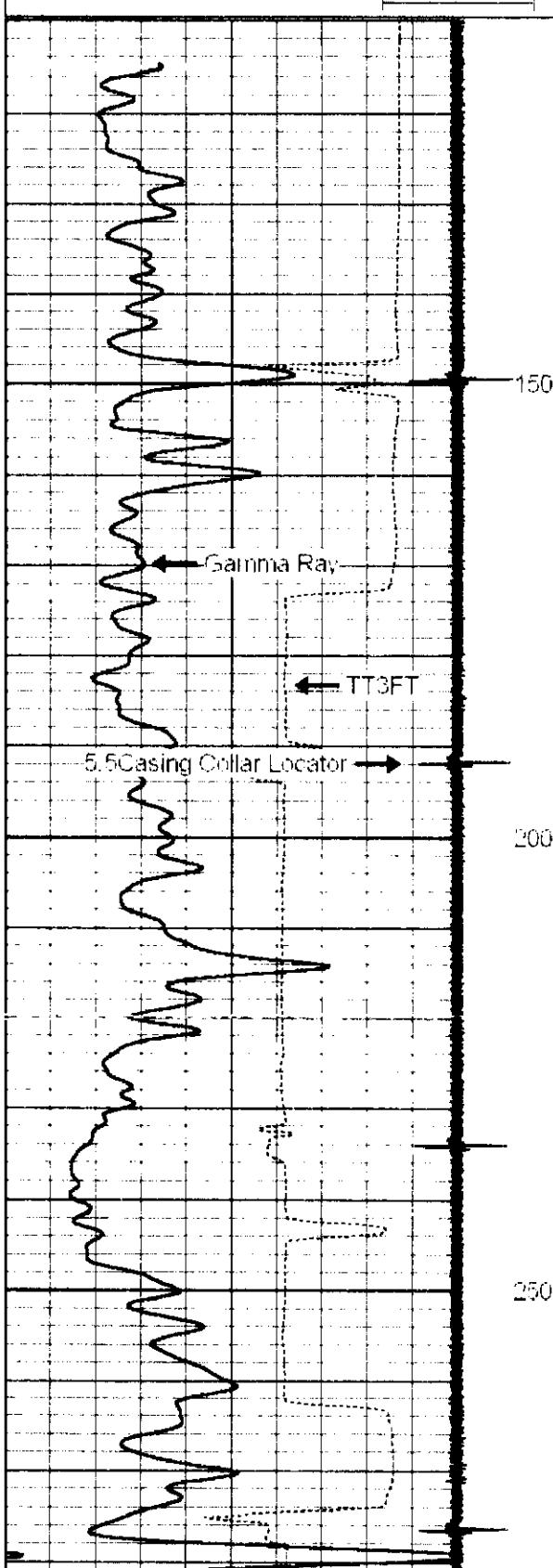
+40	TT3FT (usec)	-240
0	Gamma Ray (GAPI)	150

-4 CCL 4

U	Amp Amplitude (mV)	20	200
0	Amplitude 3ft (mV)	100	

Variable Density

1200



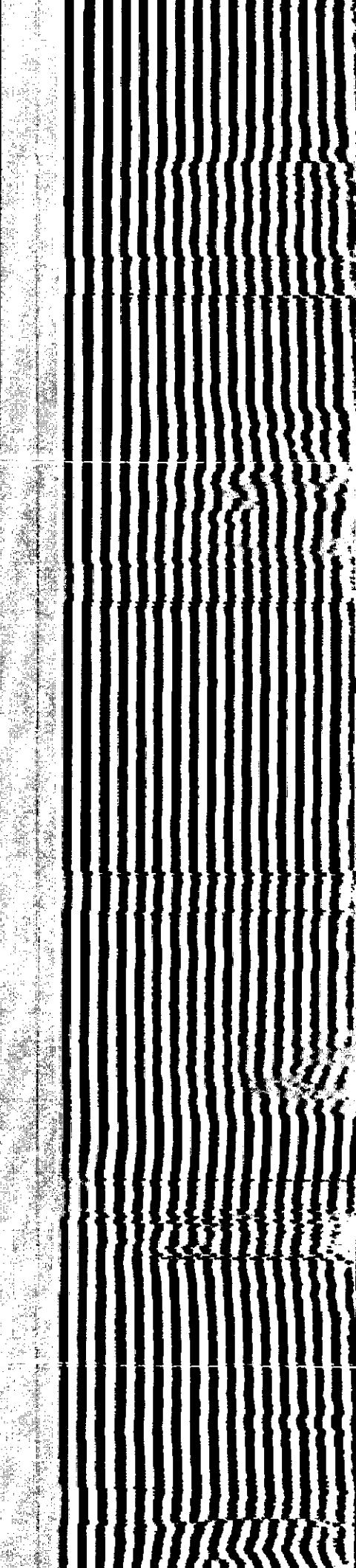
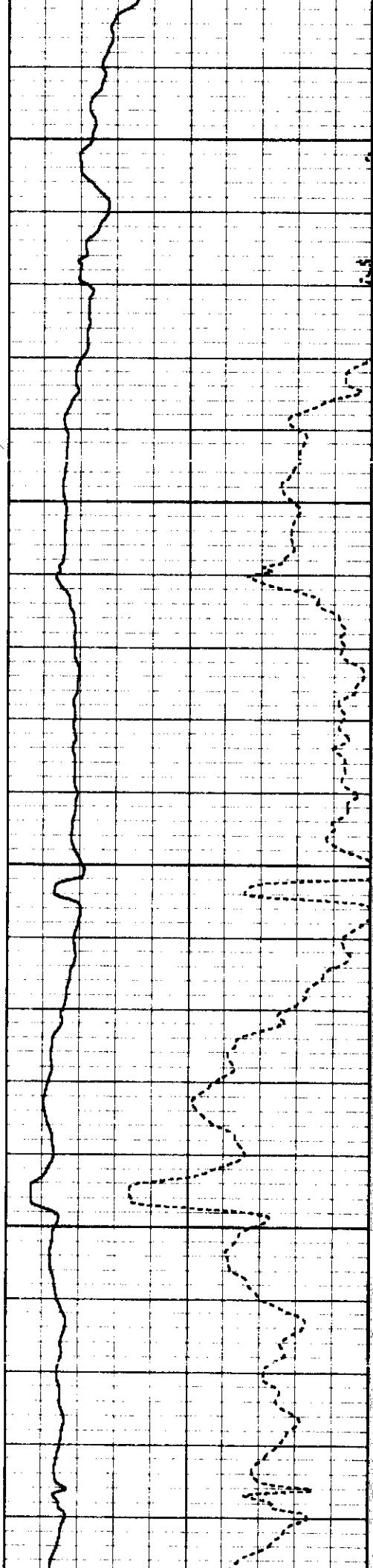
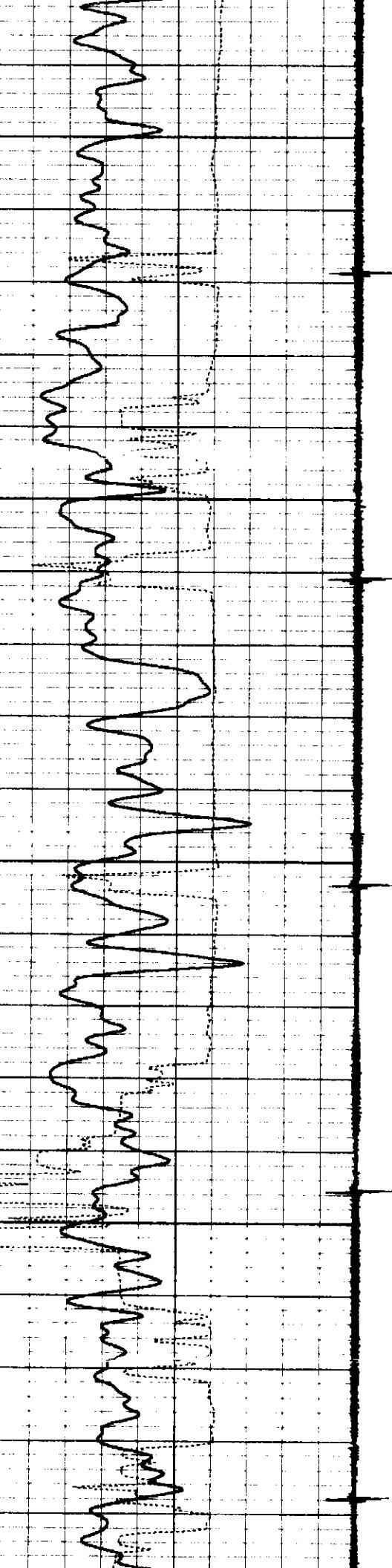
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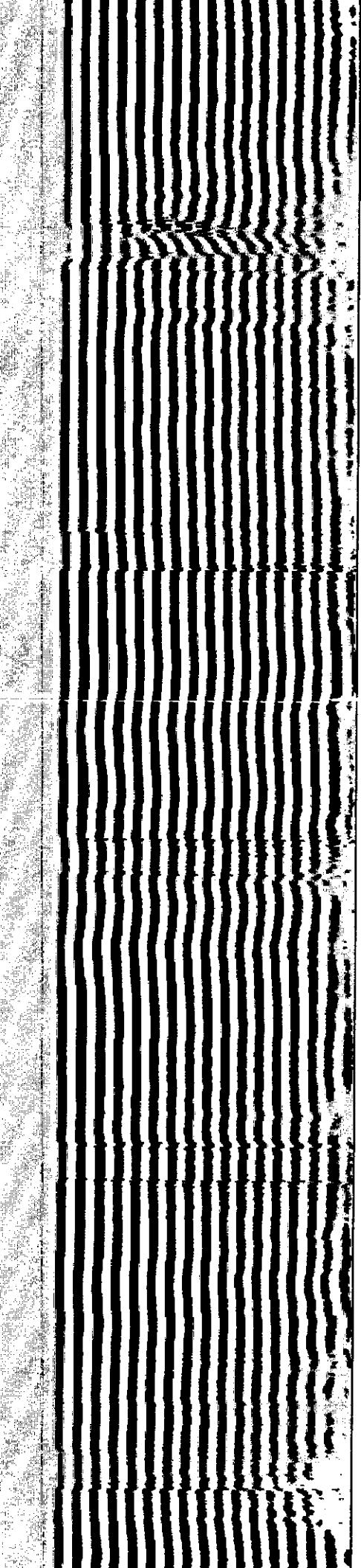
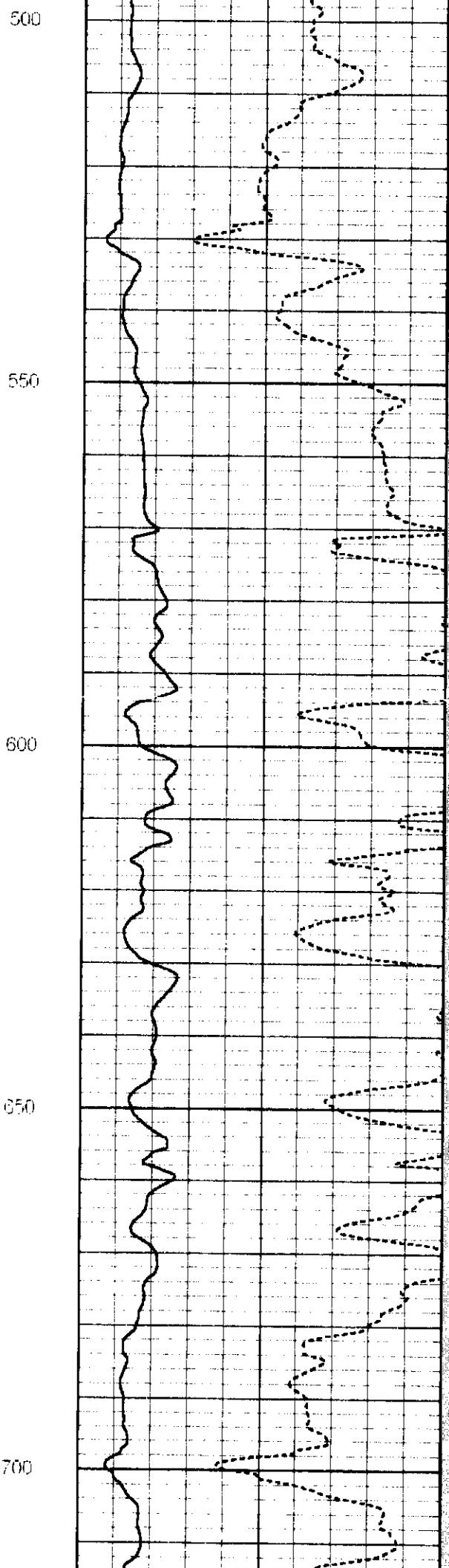
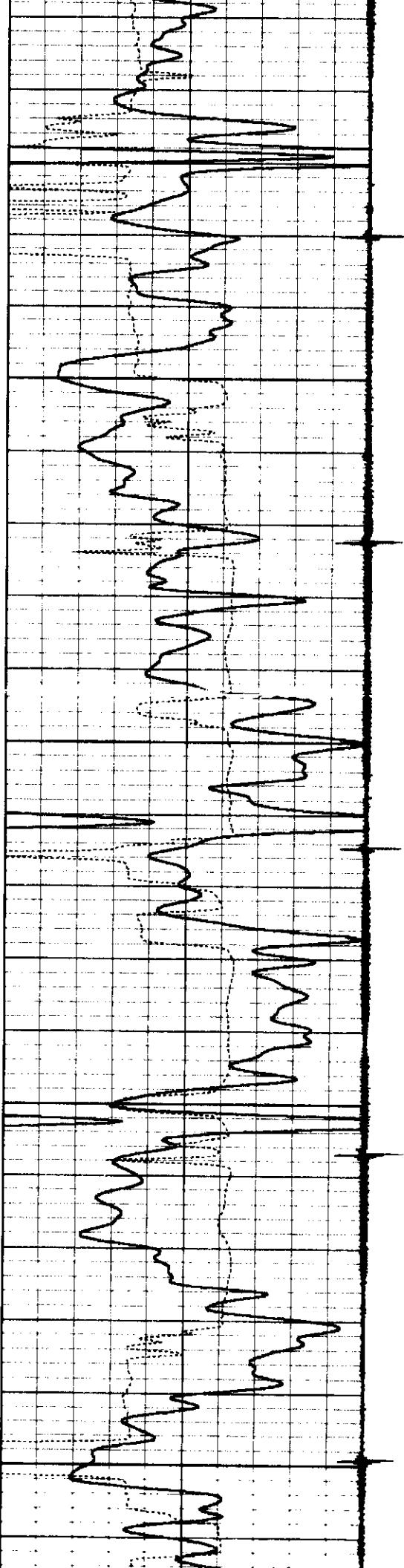
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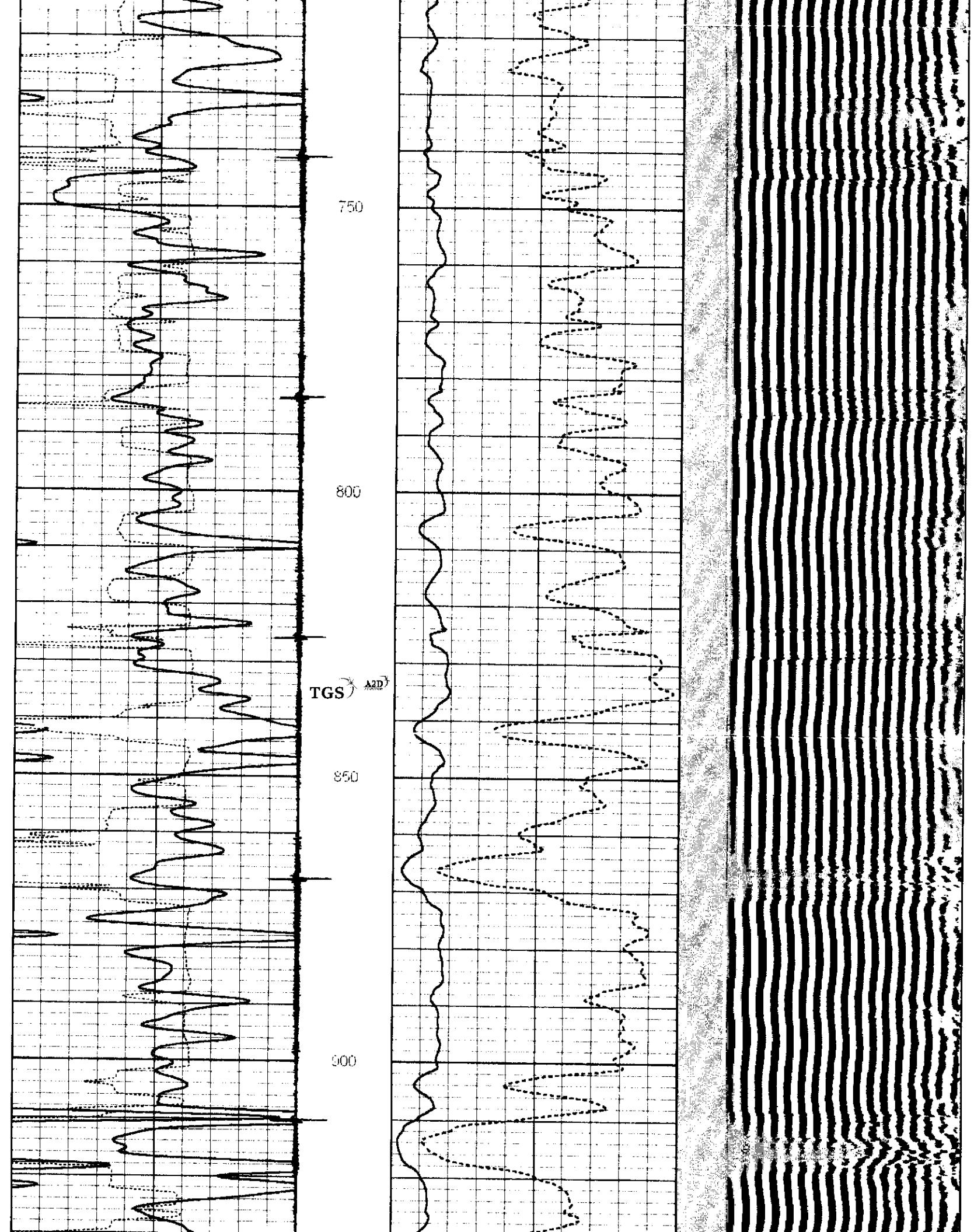
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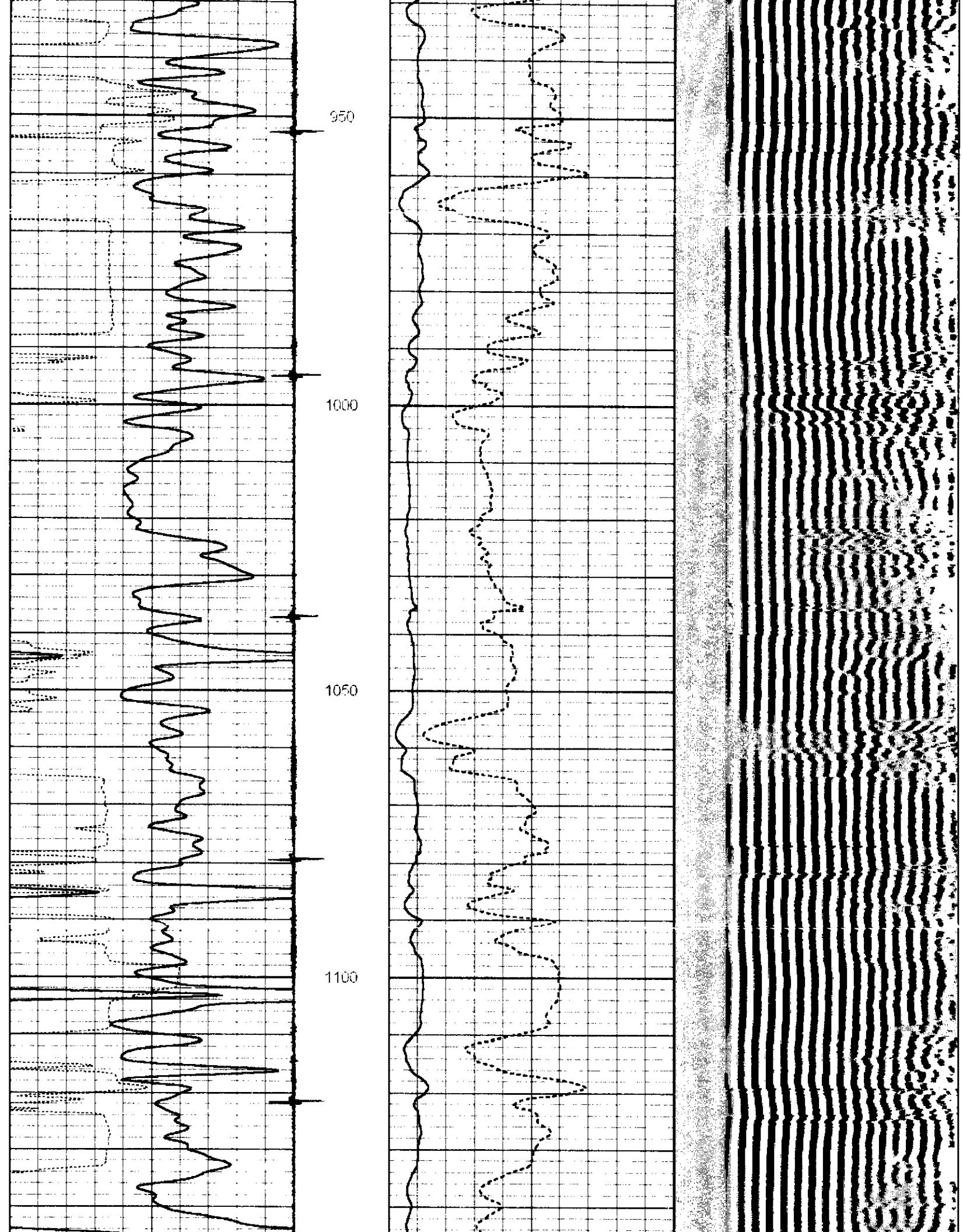
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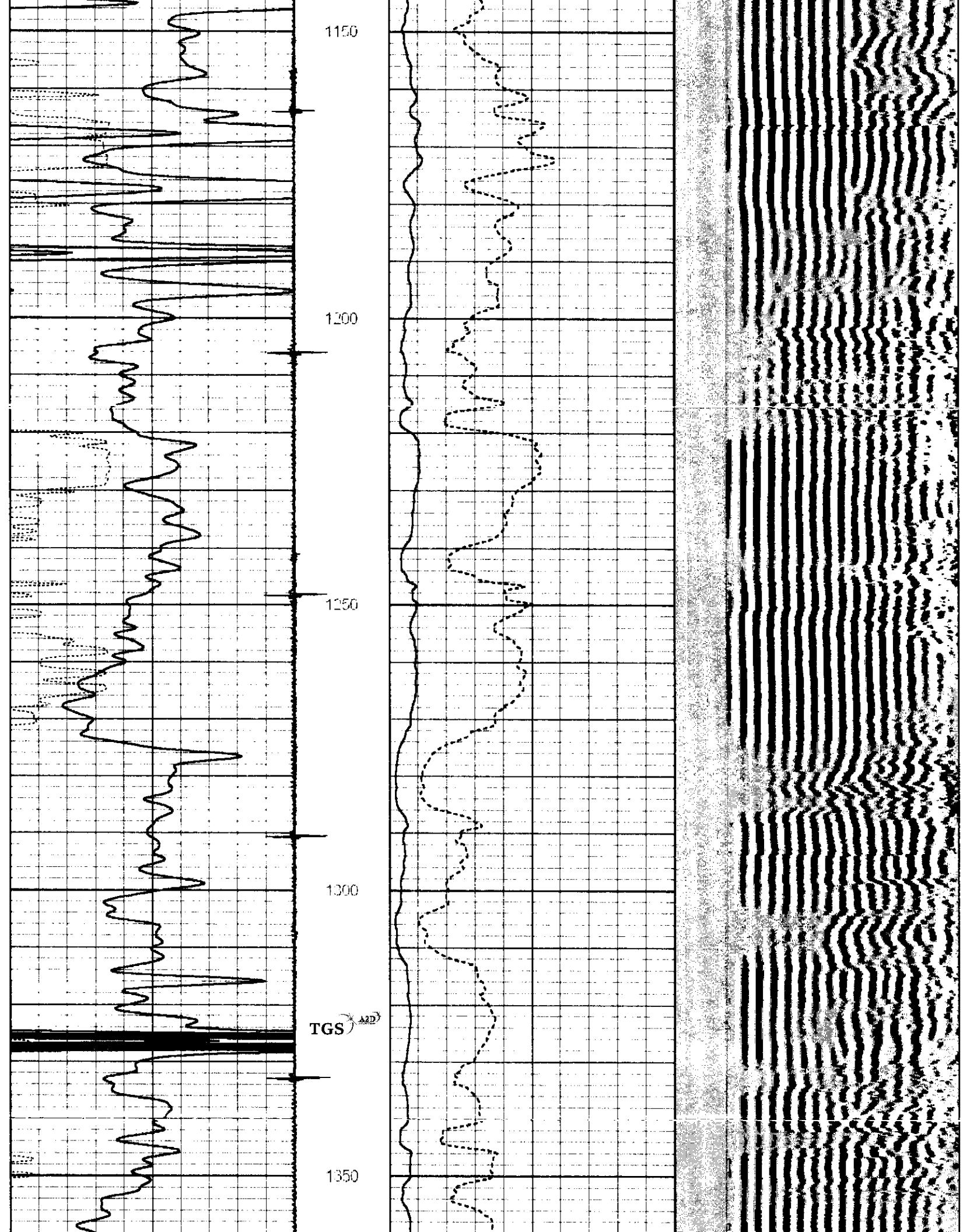
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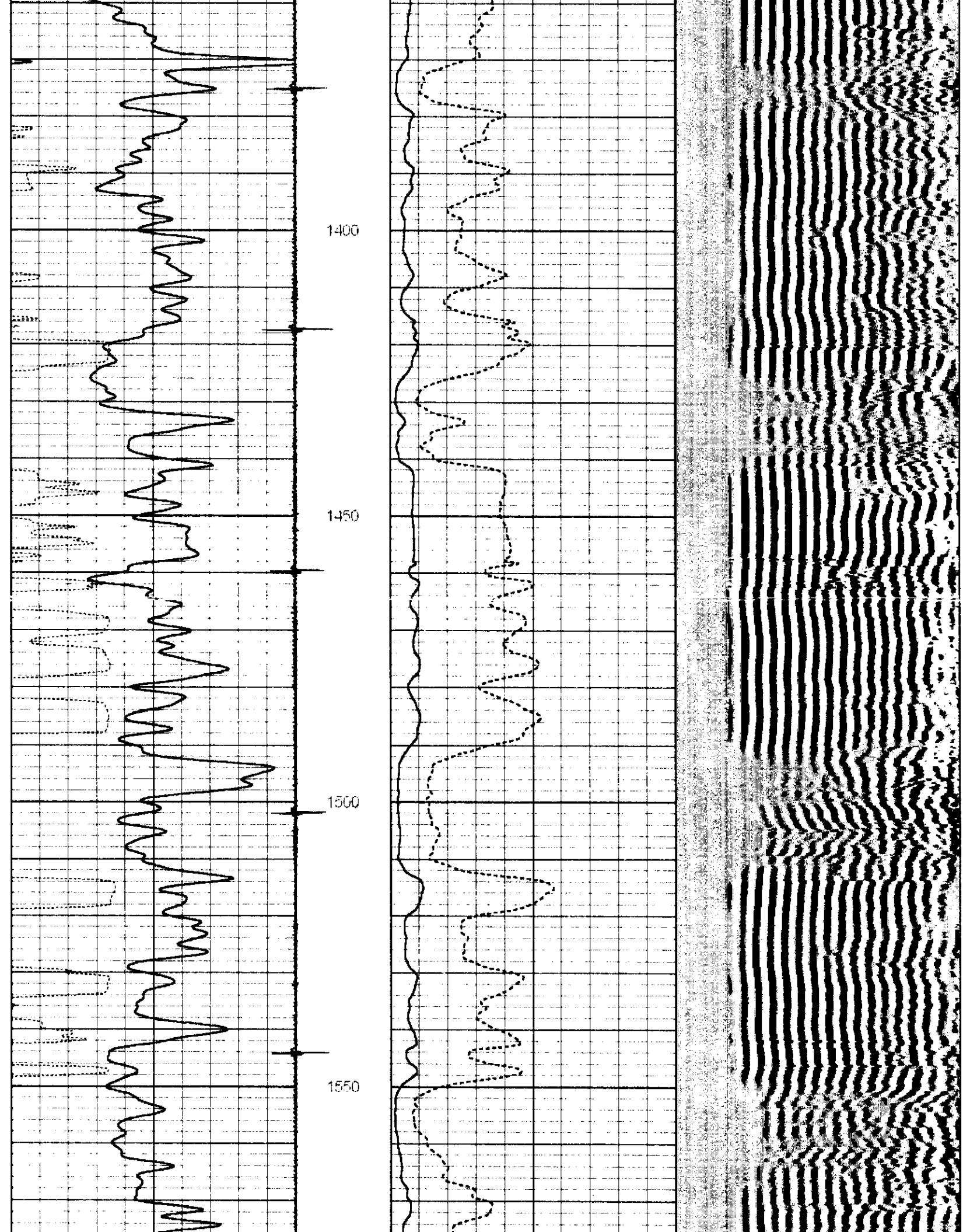


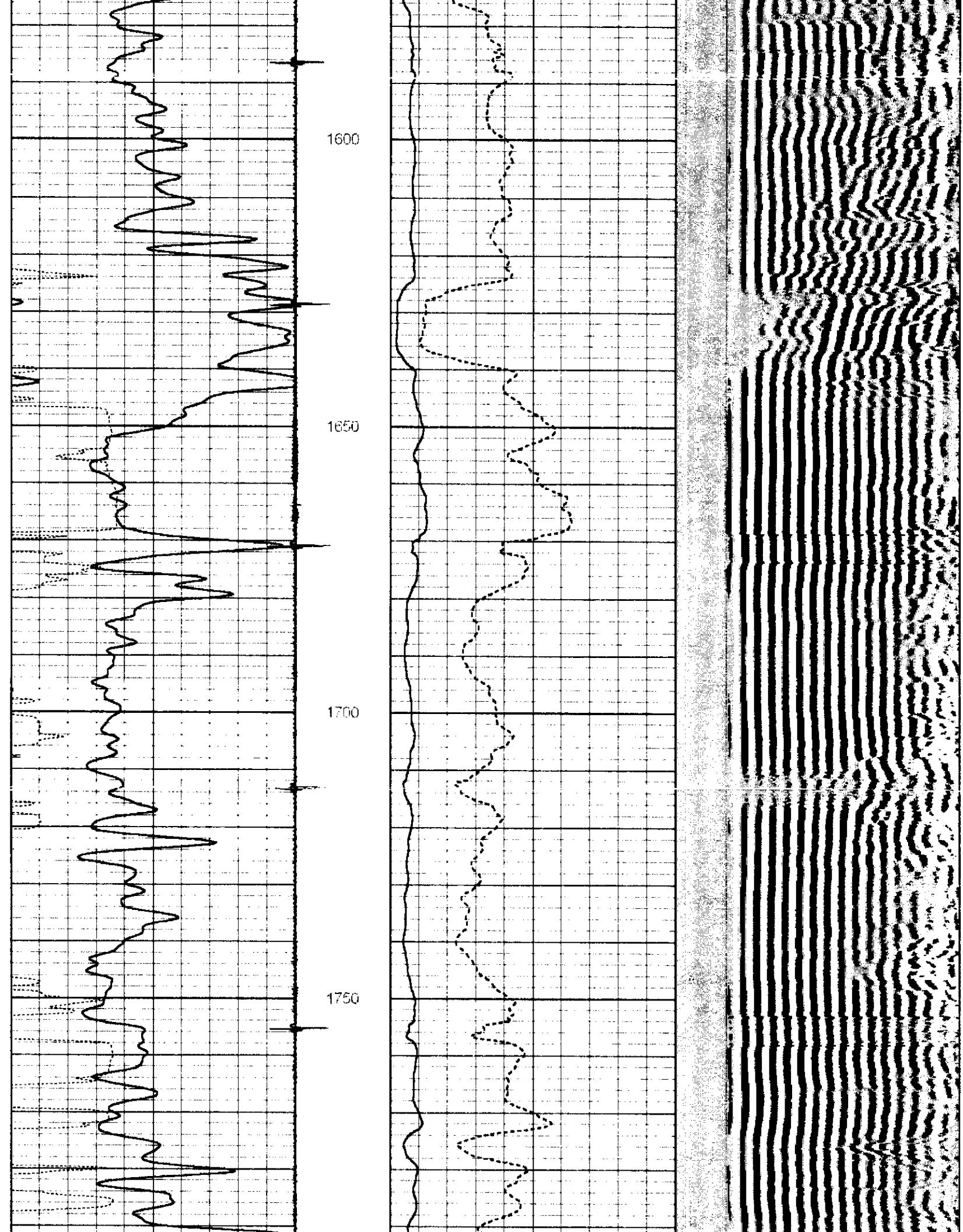


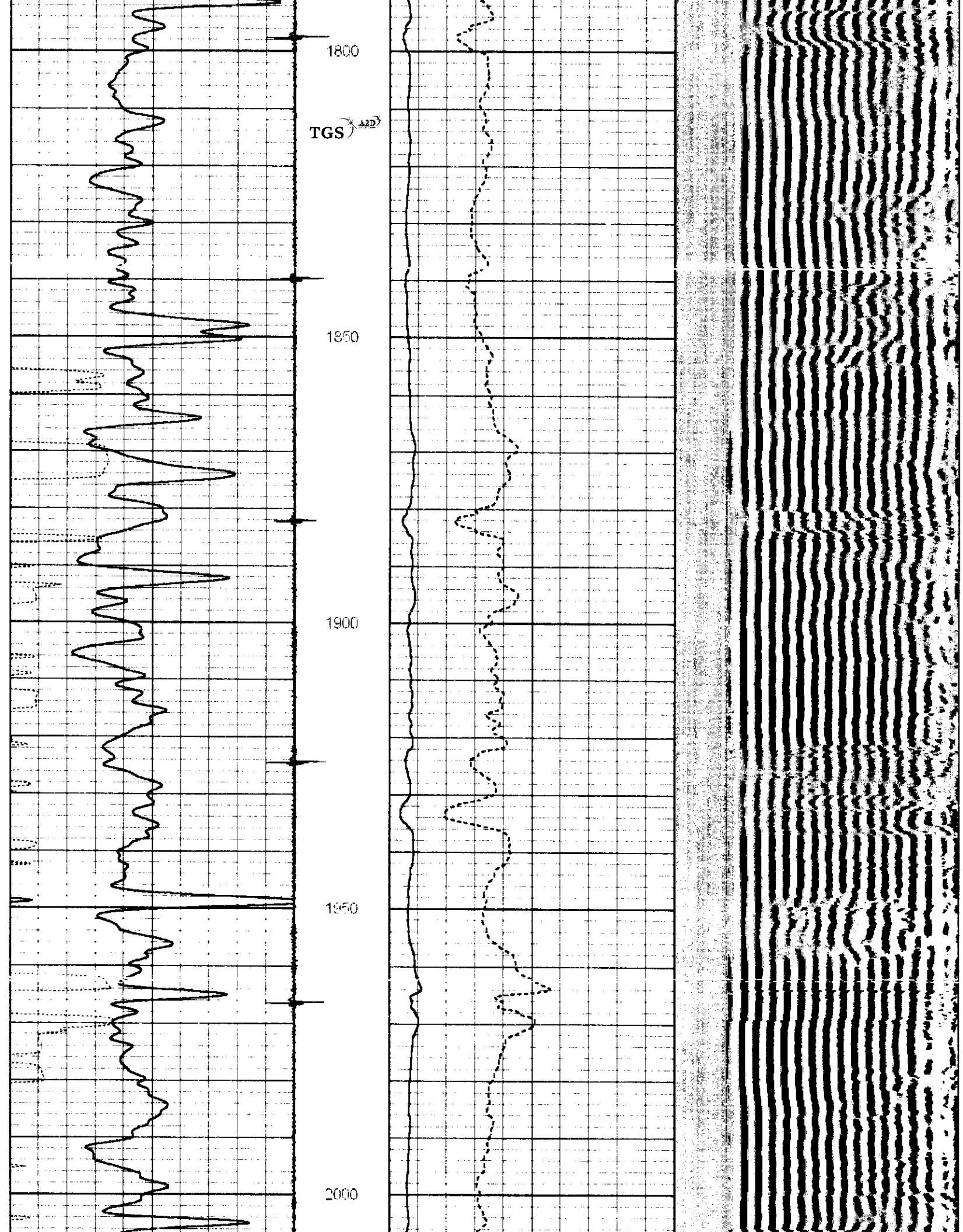


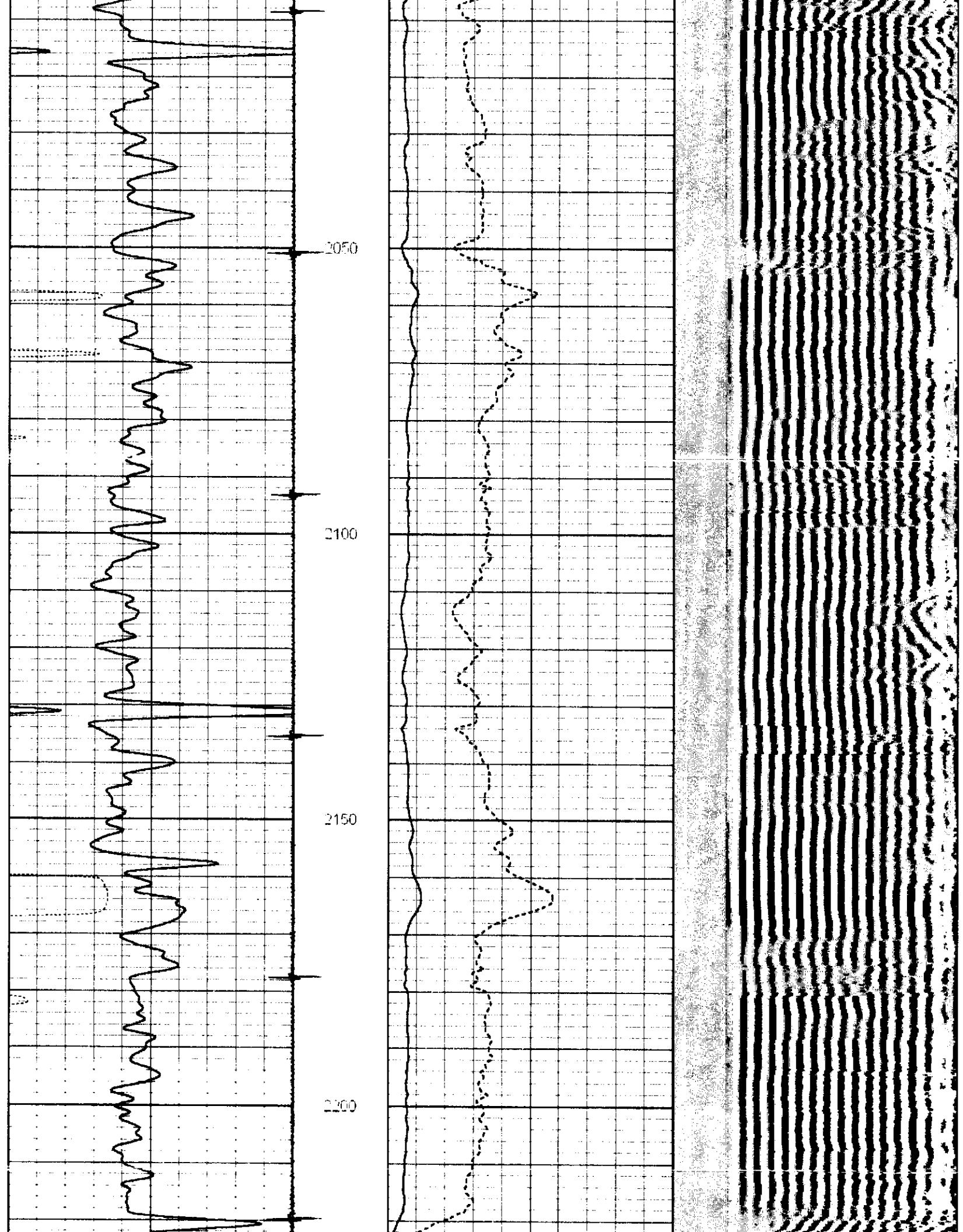


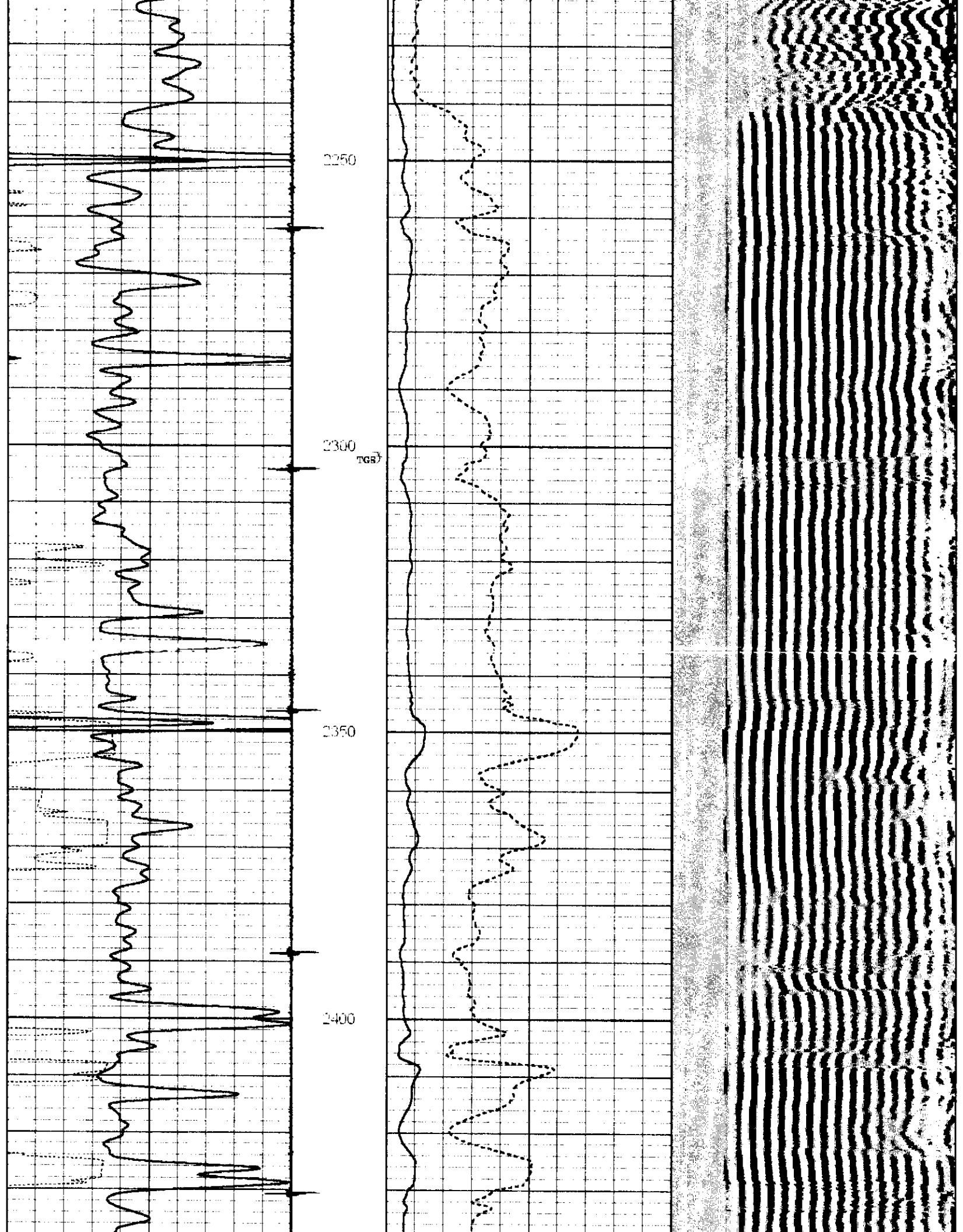


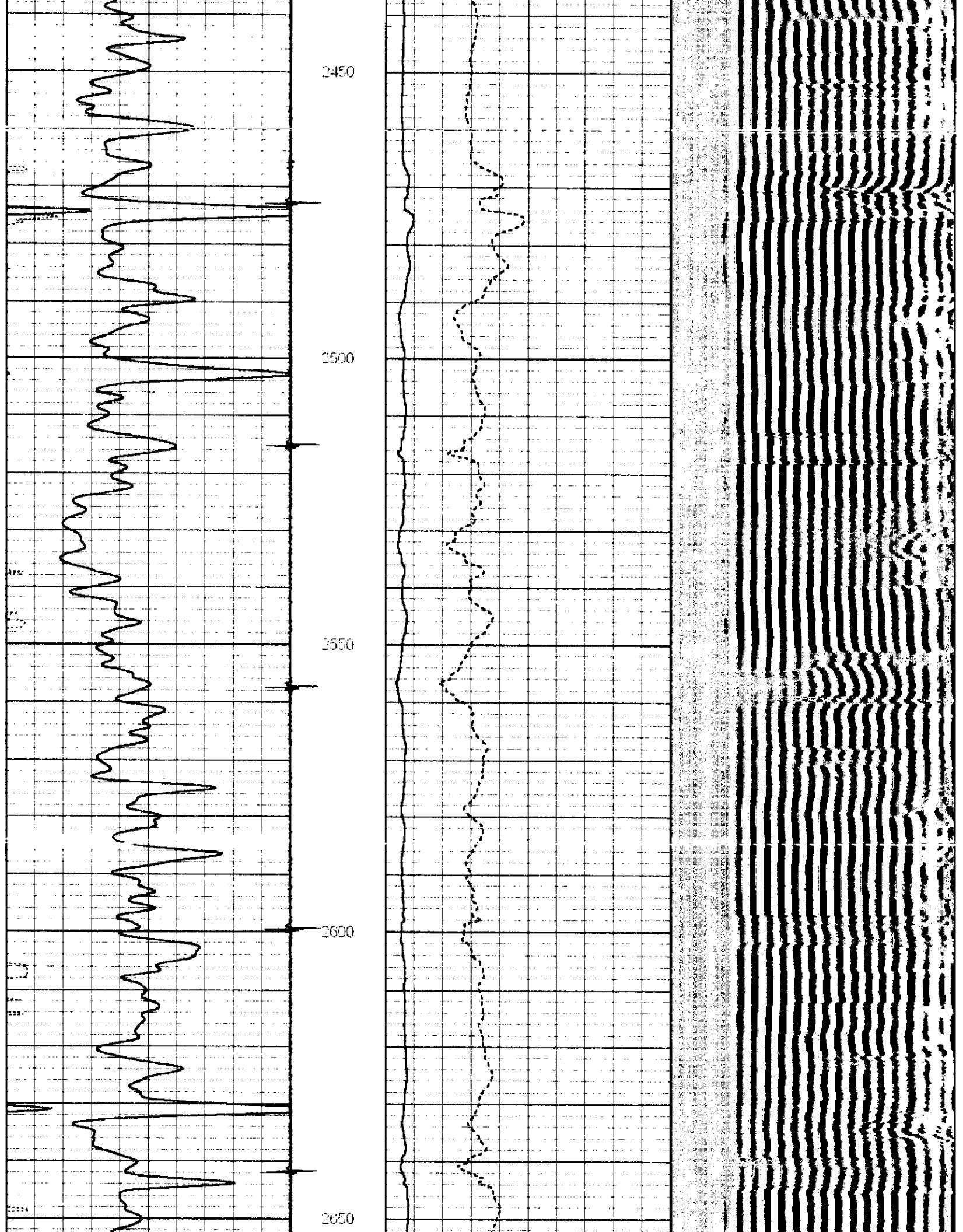


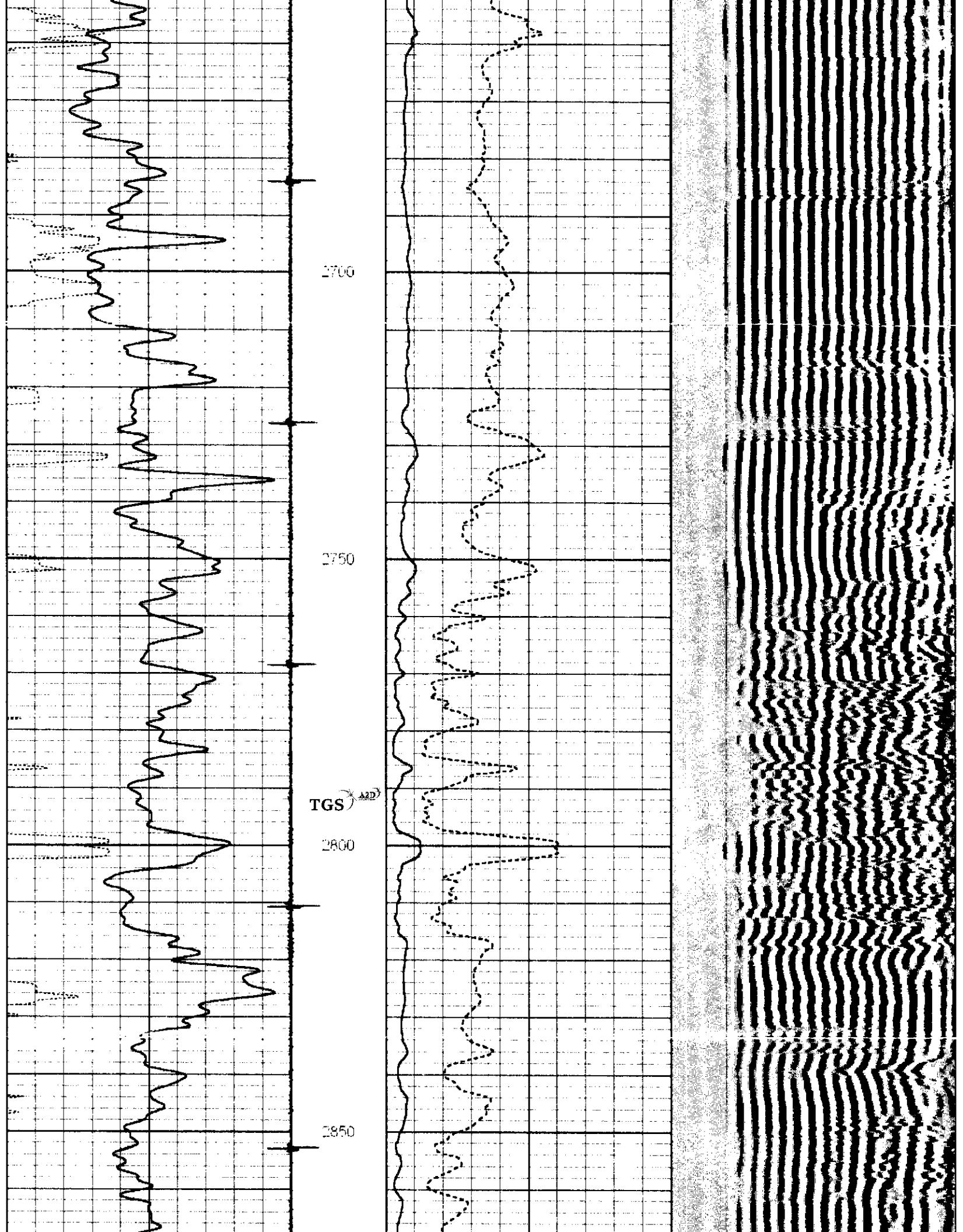


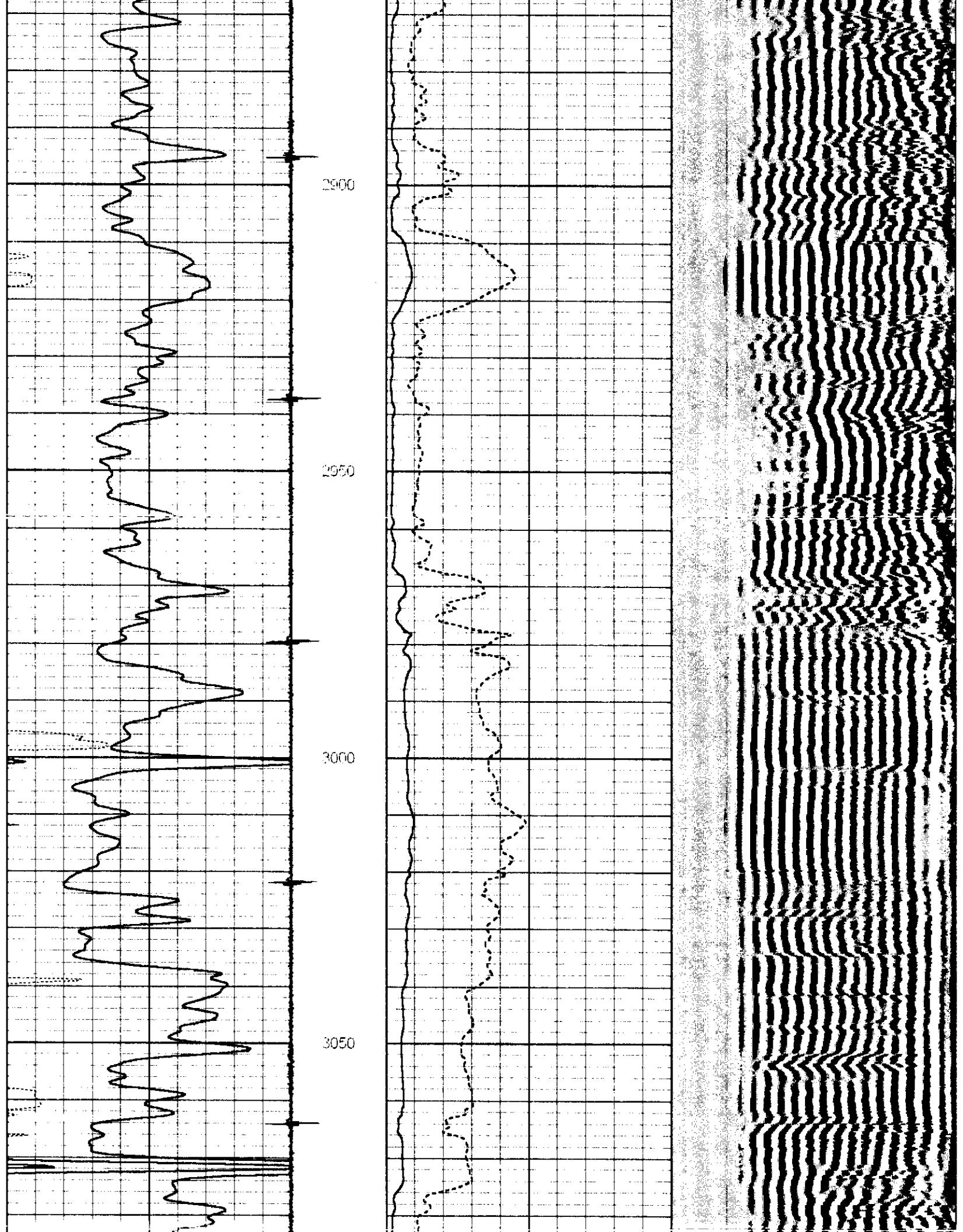


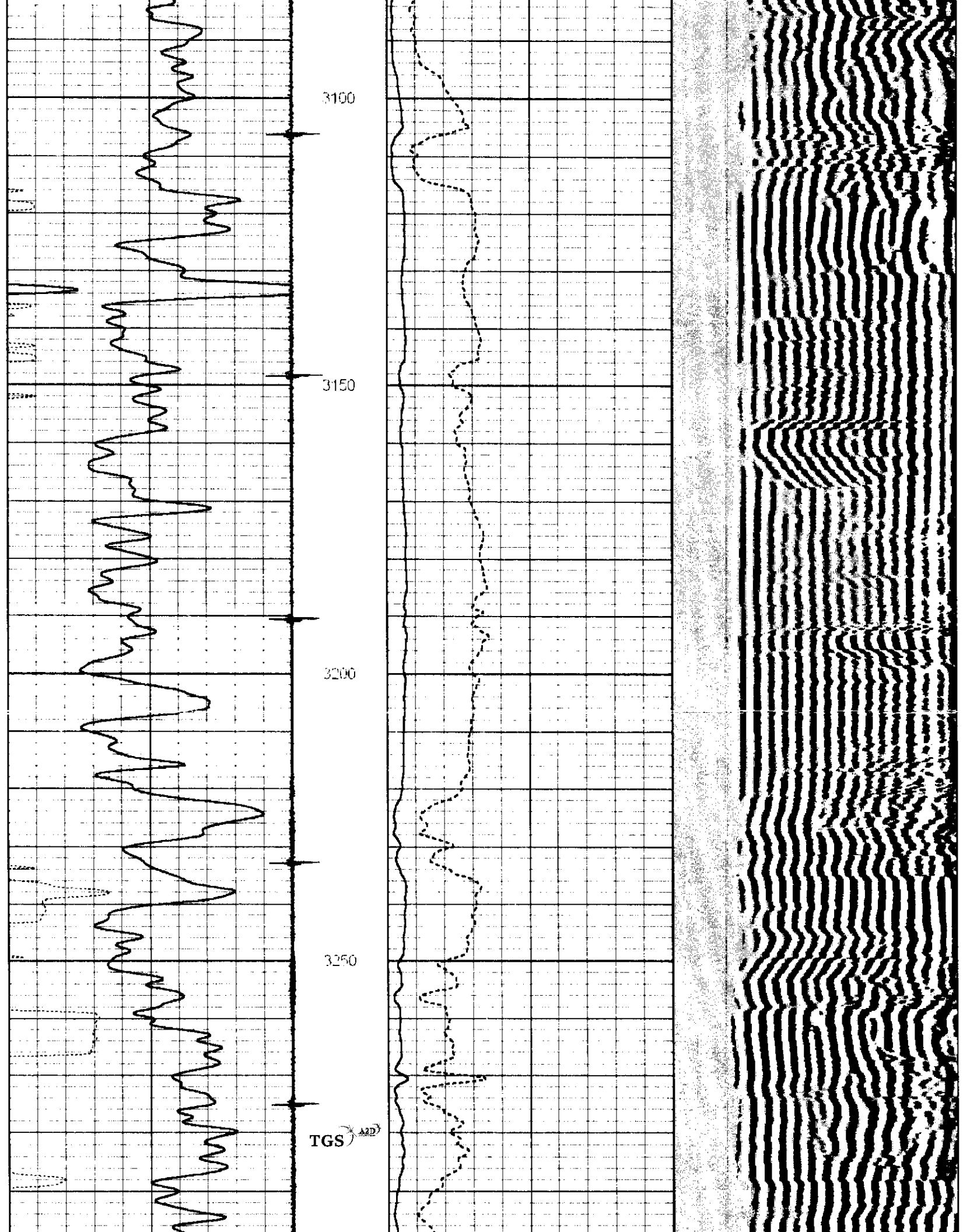


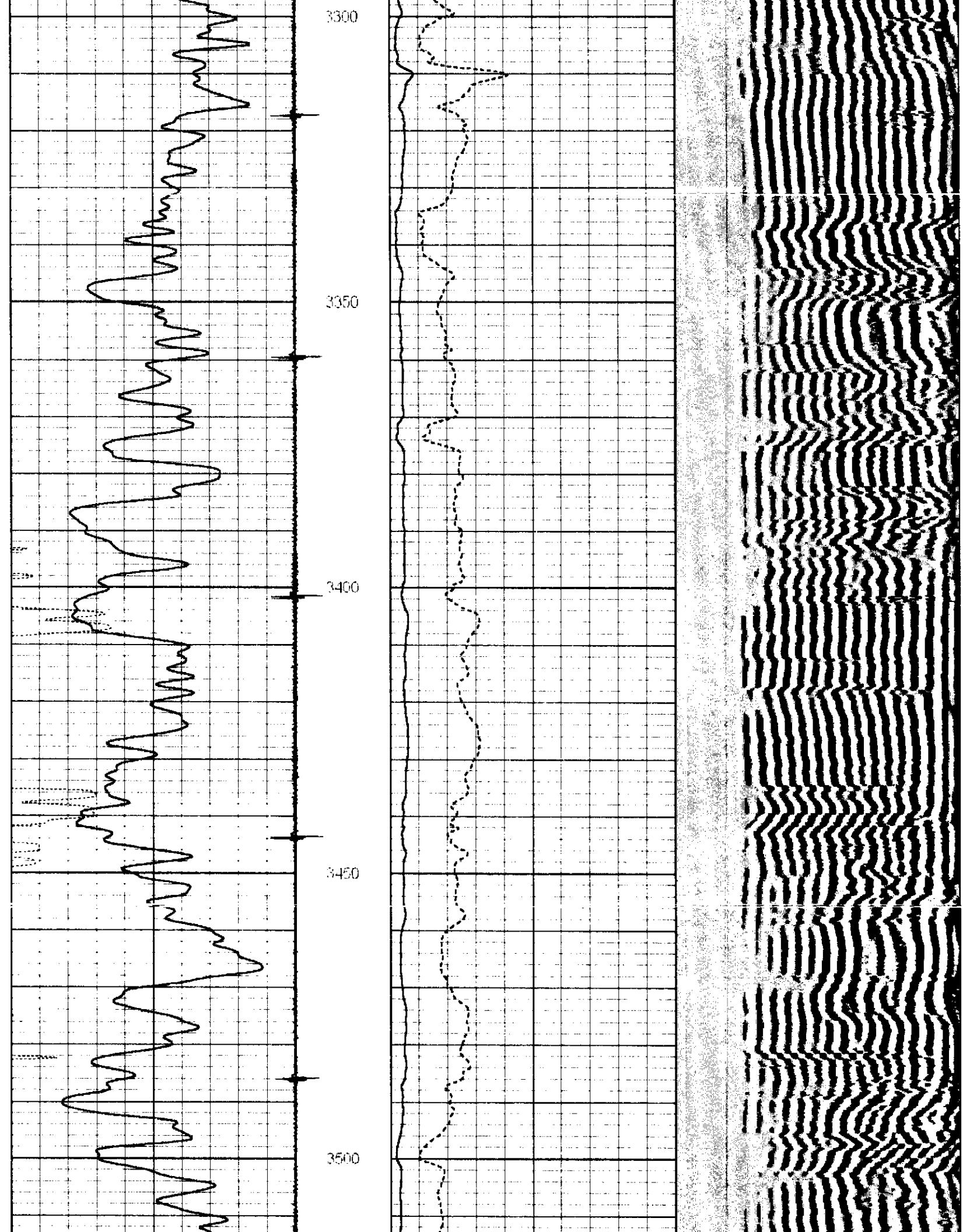


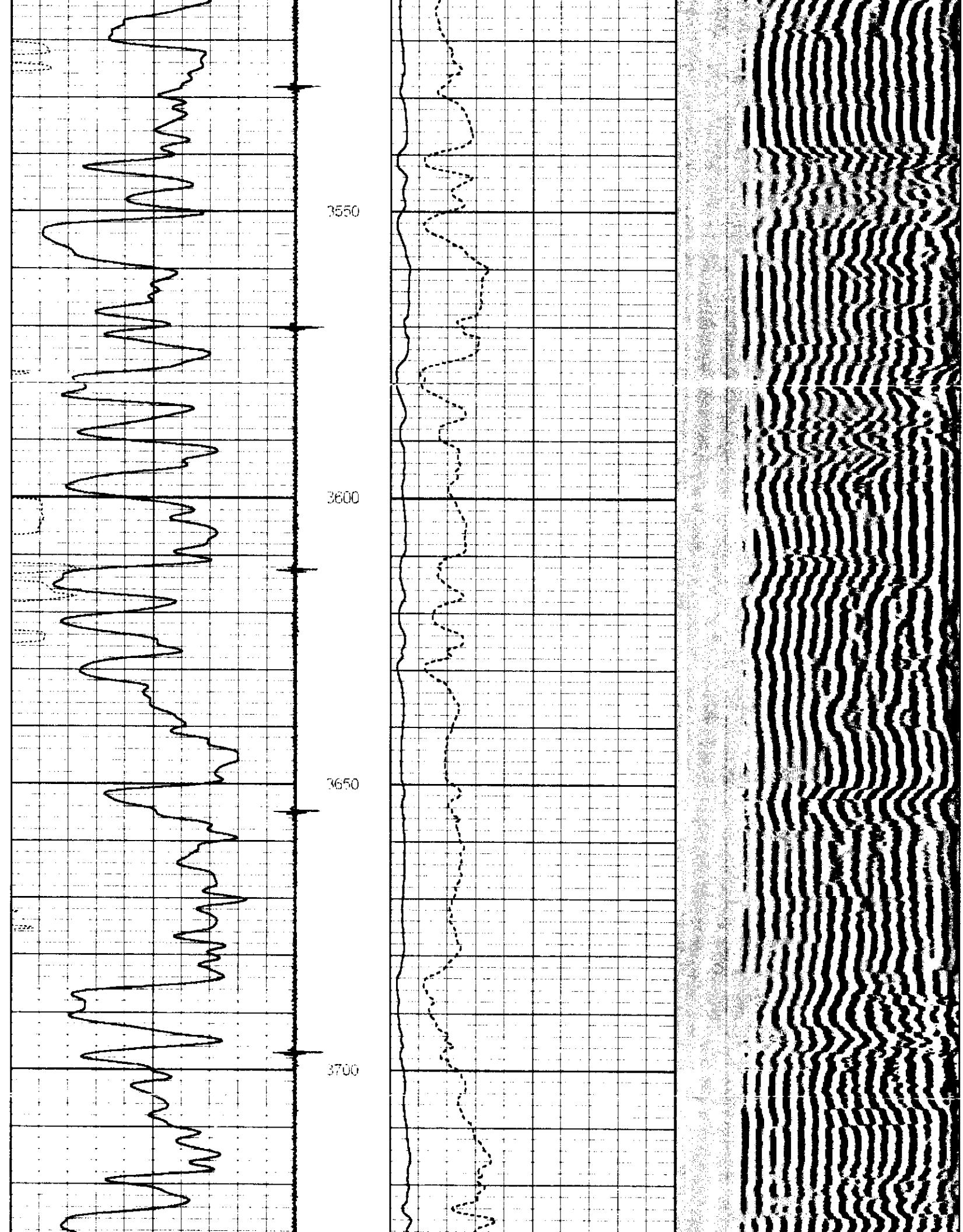


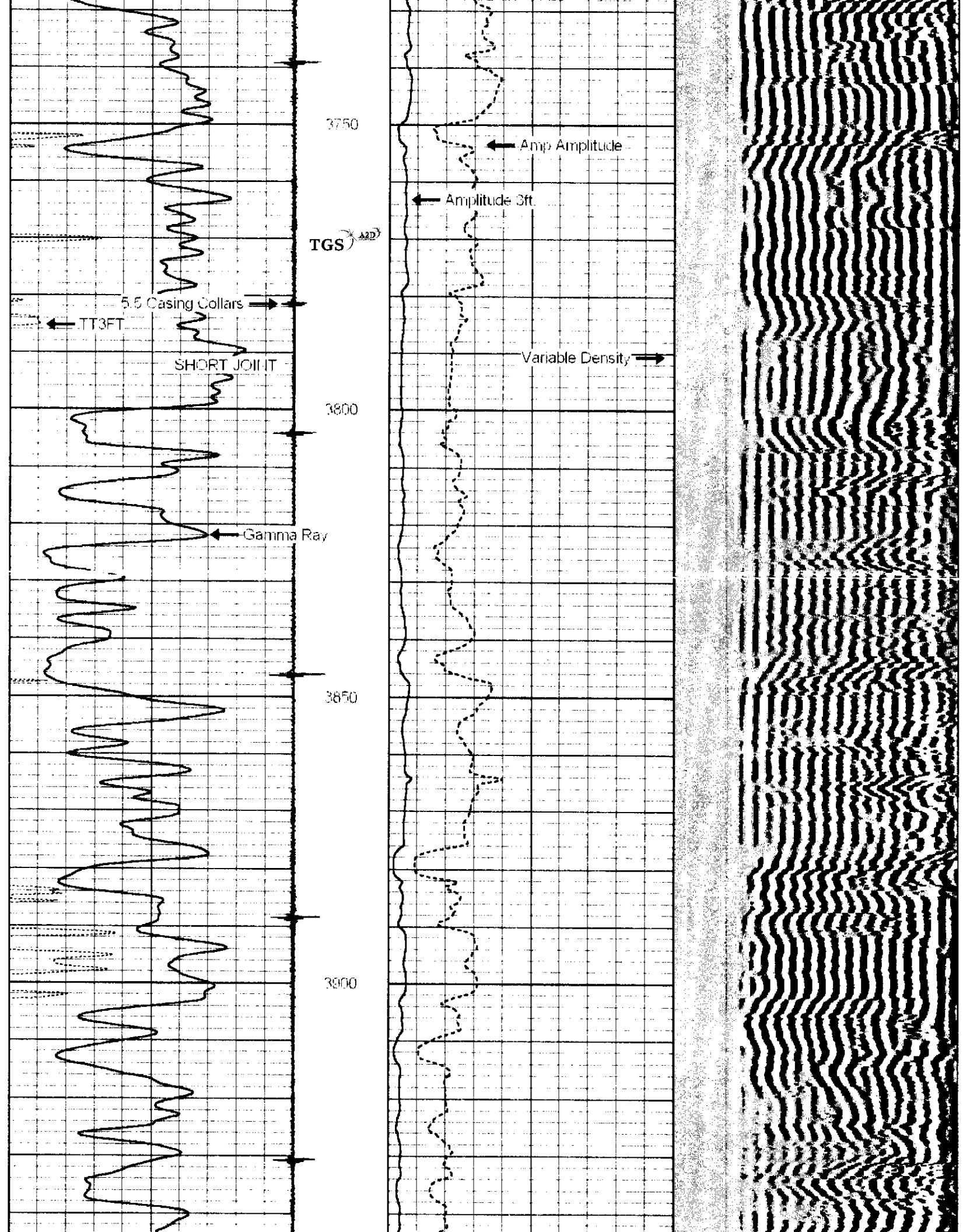


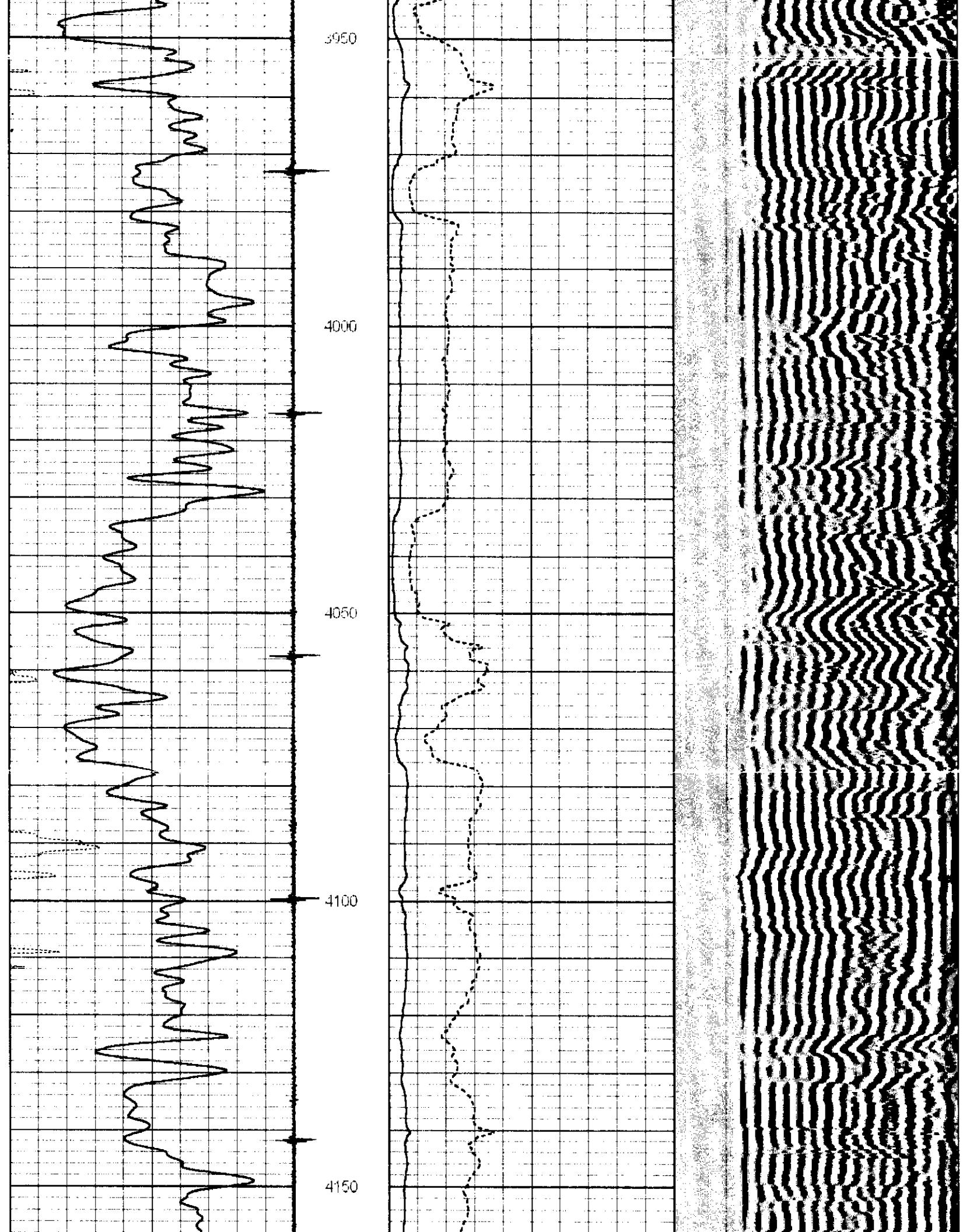


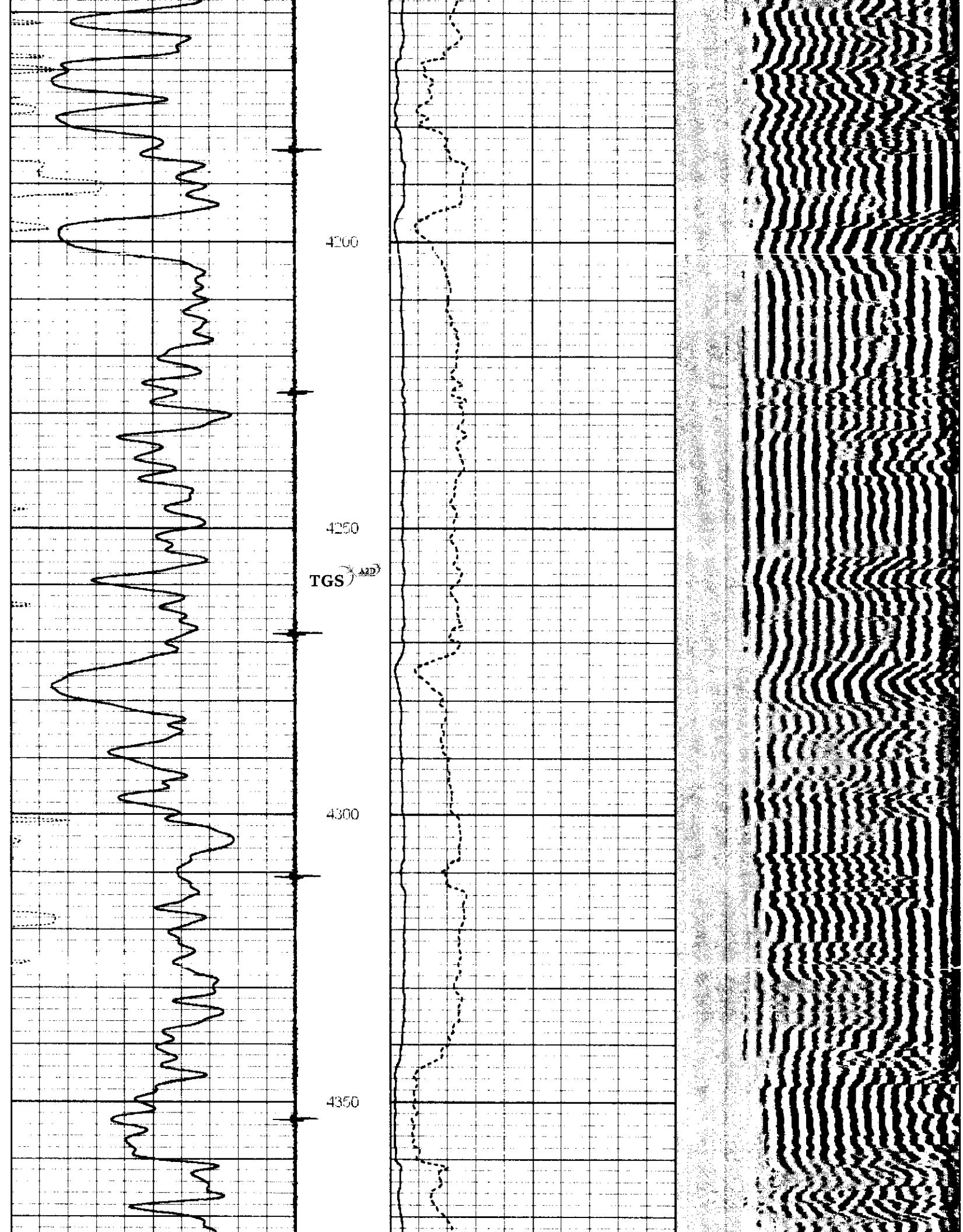


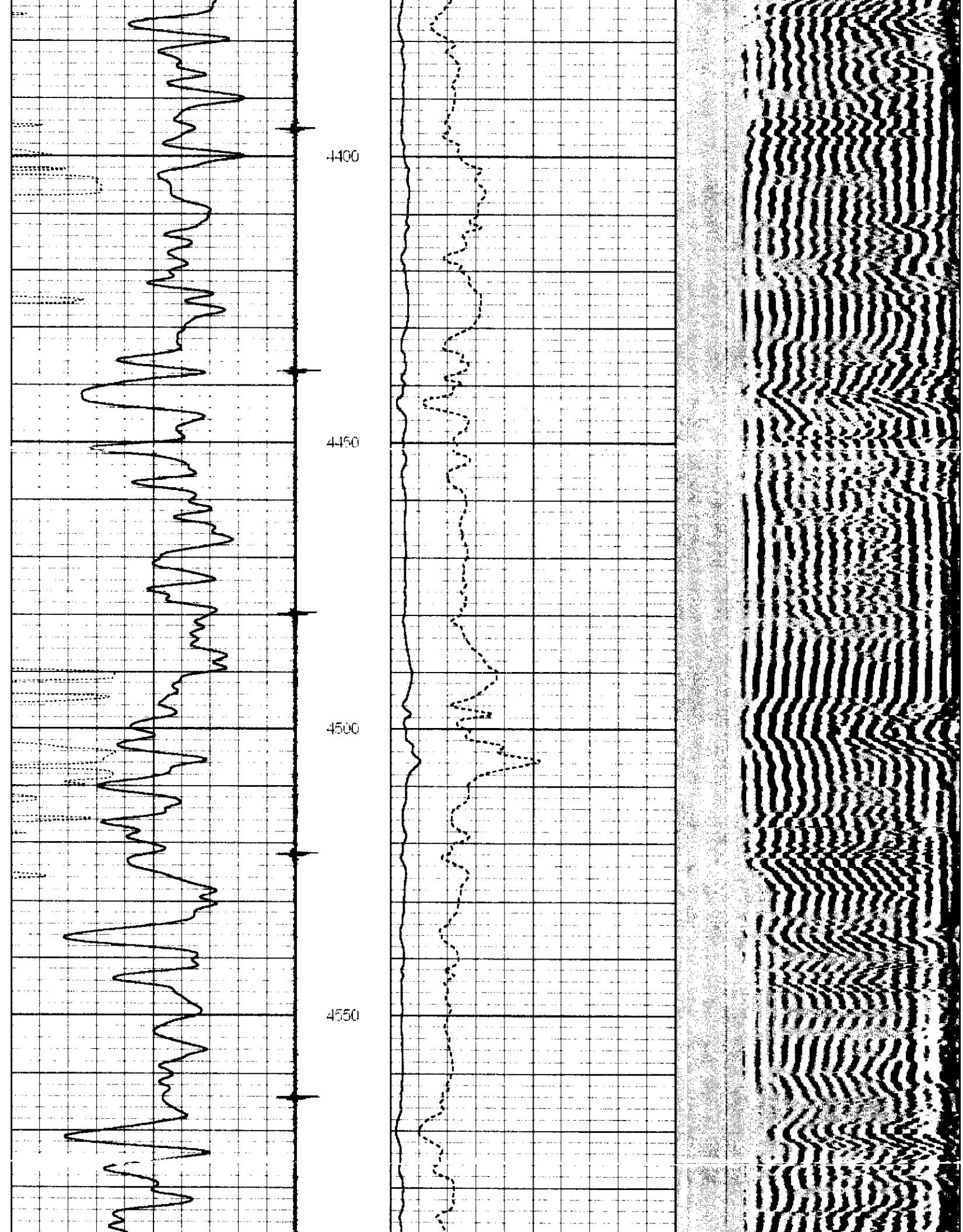


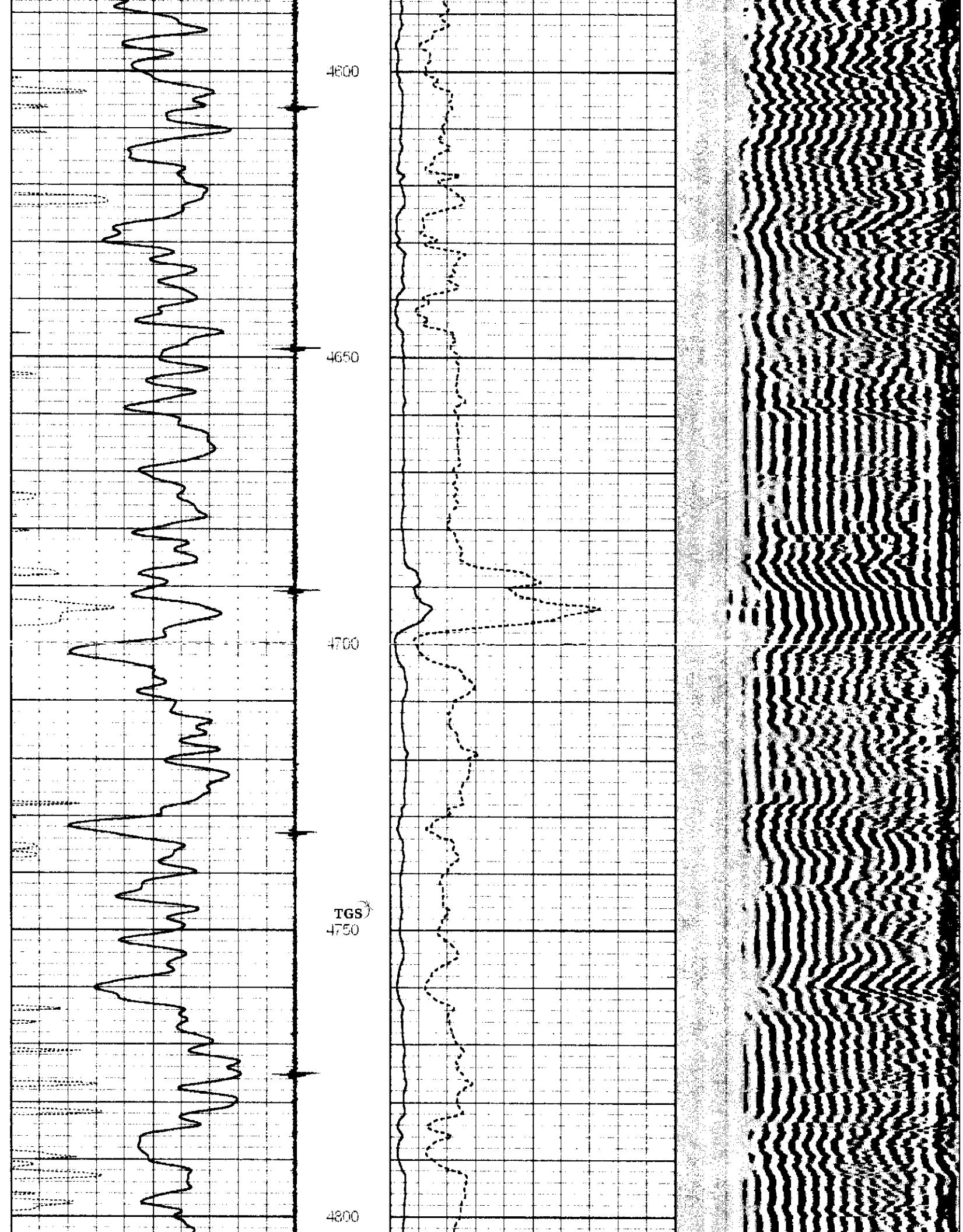


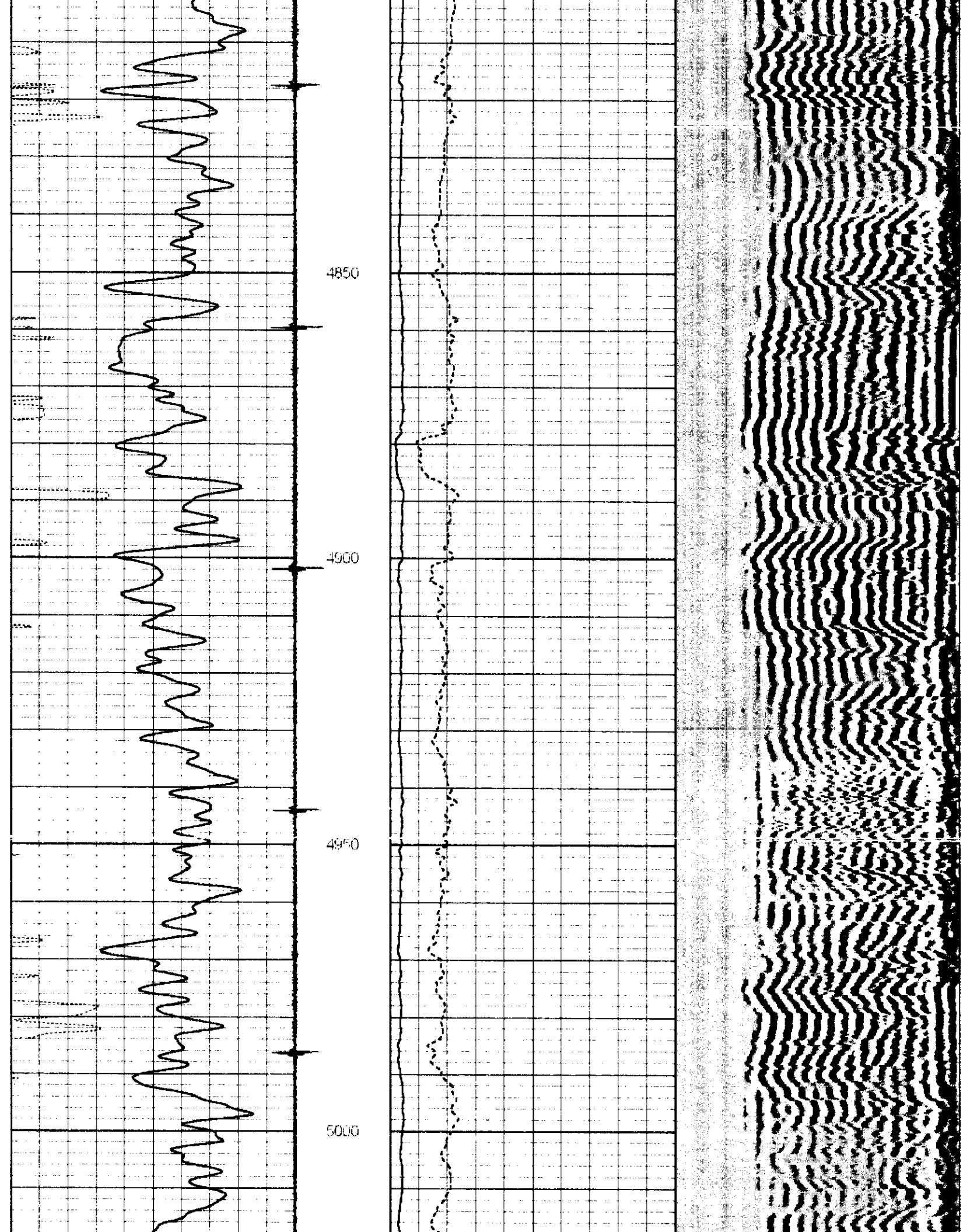


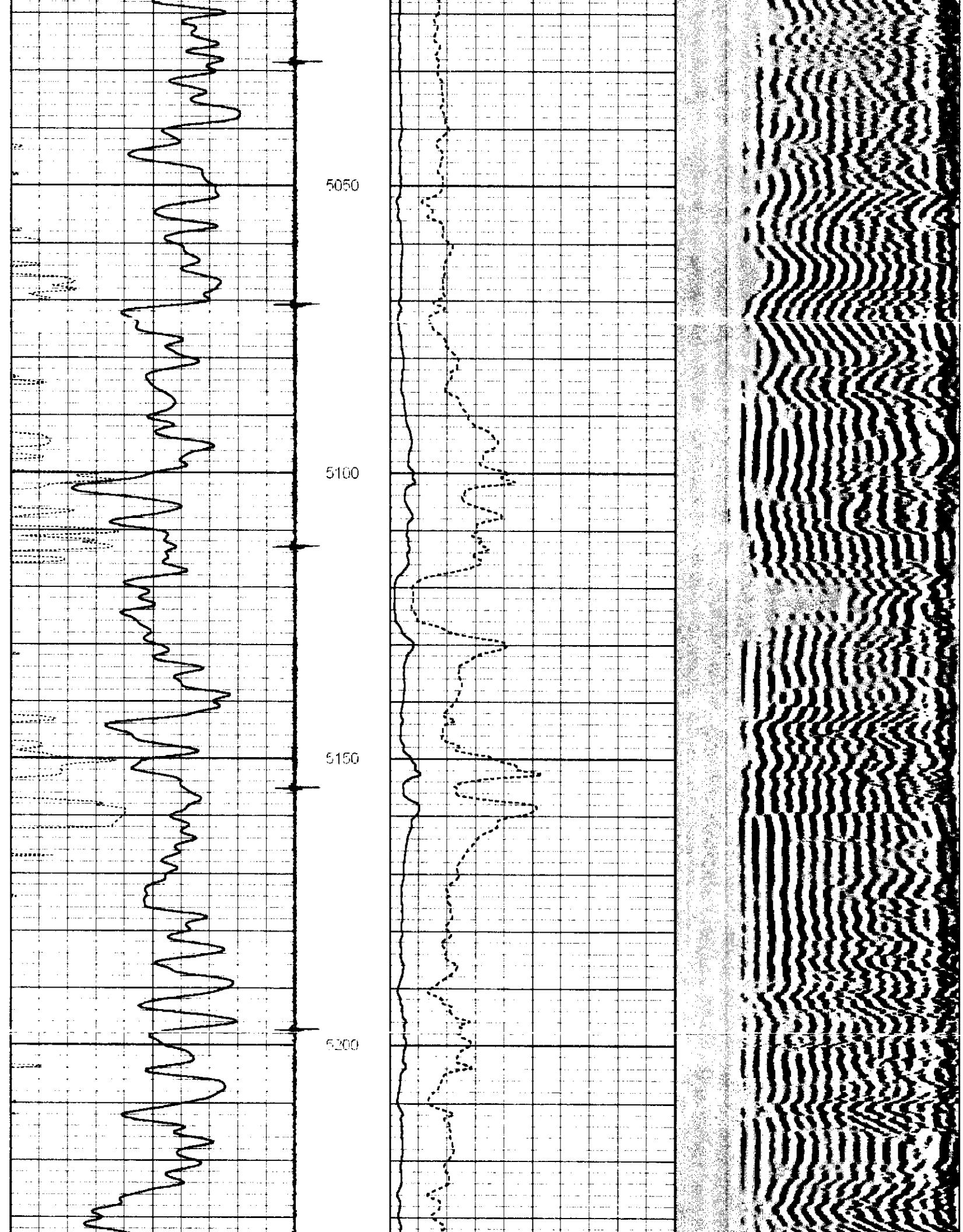












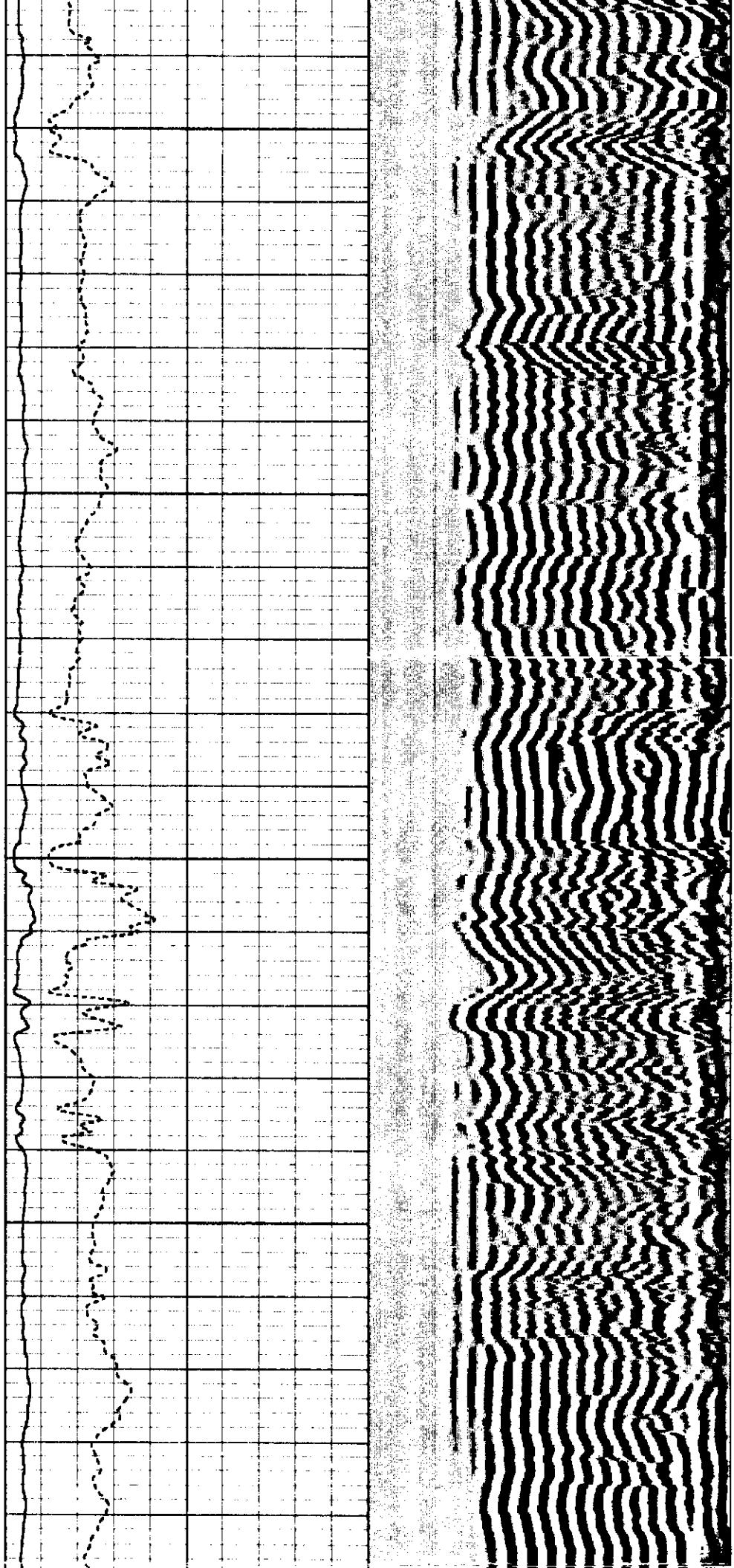
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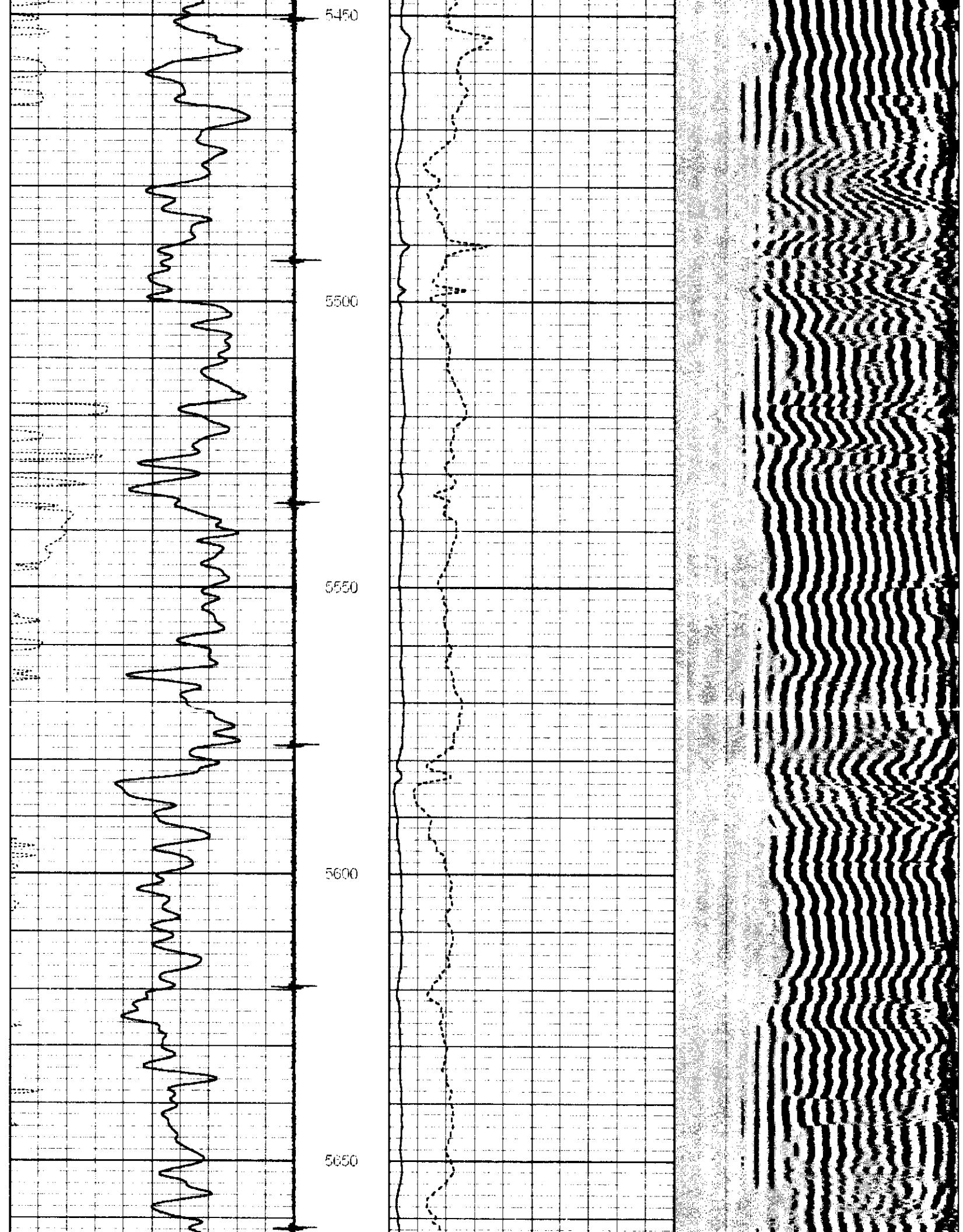
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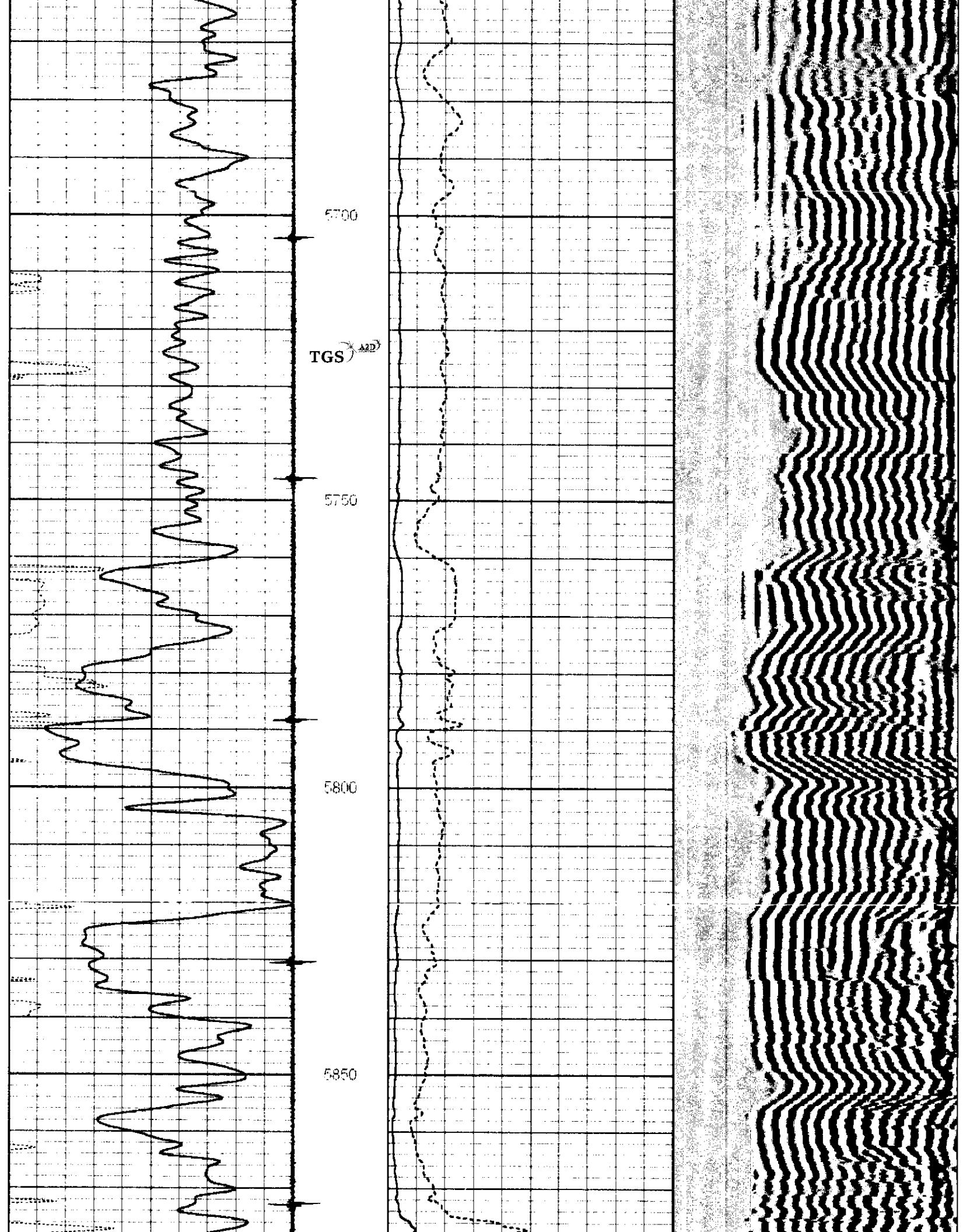
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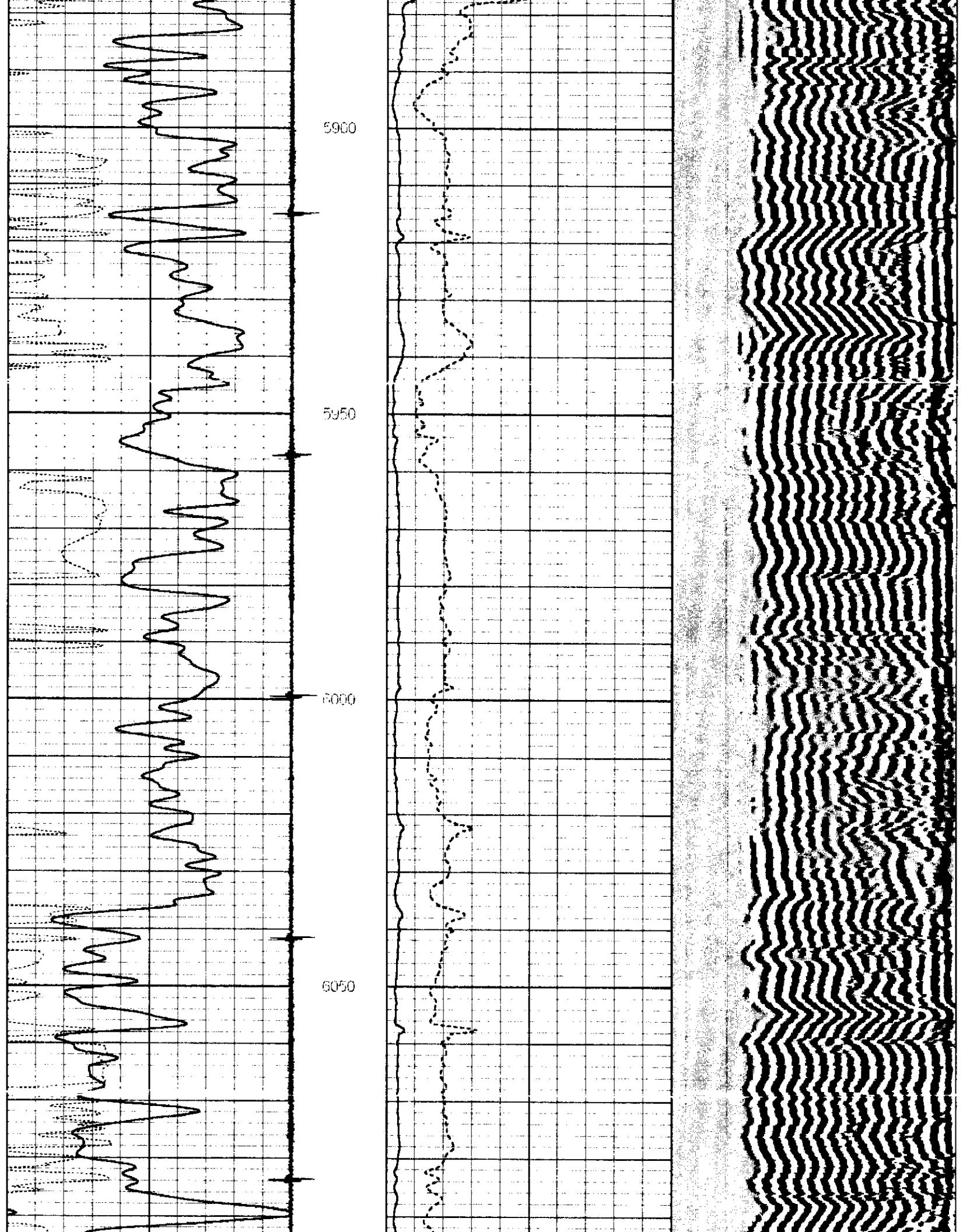
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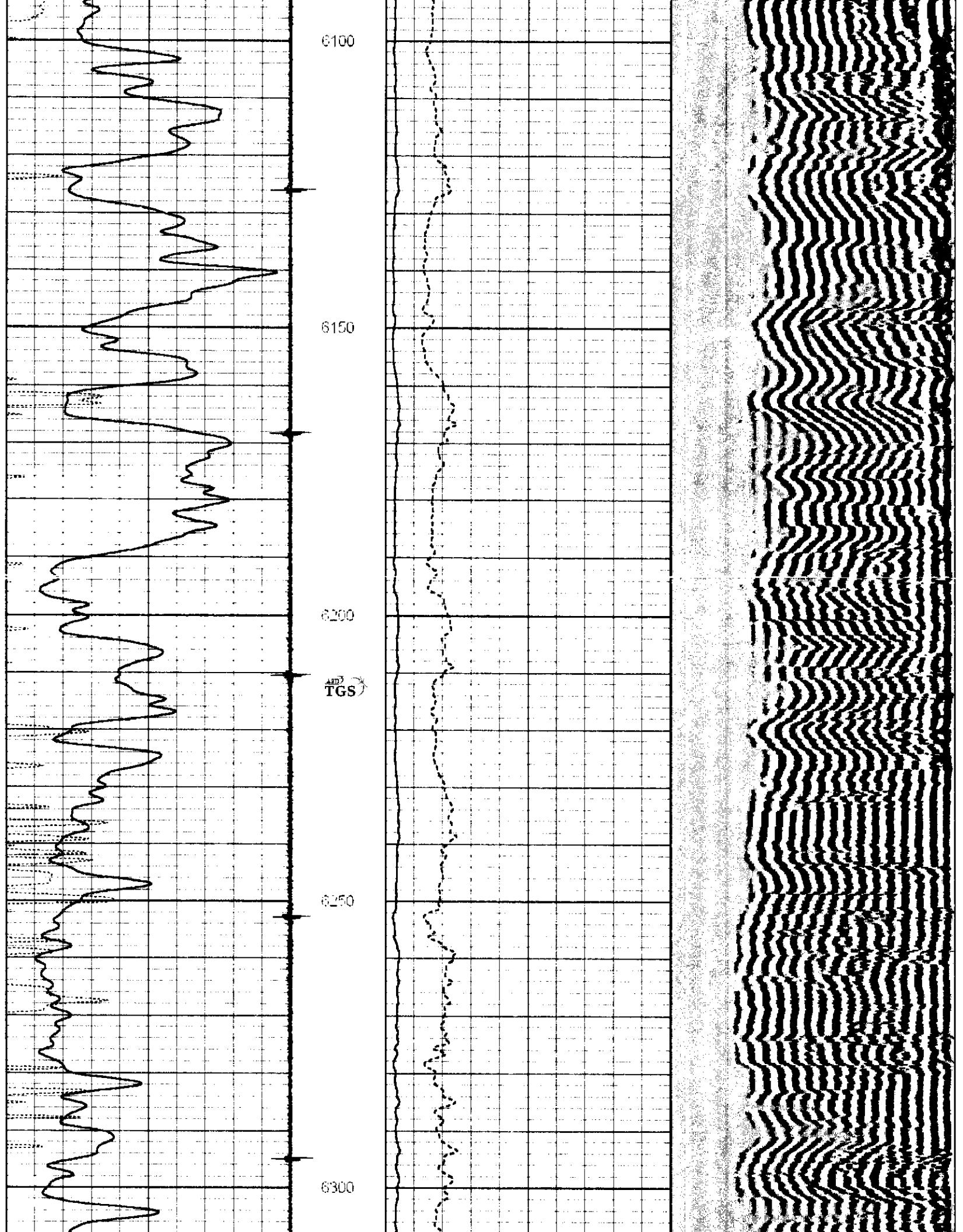
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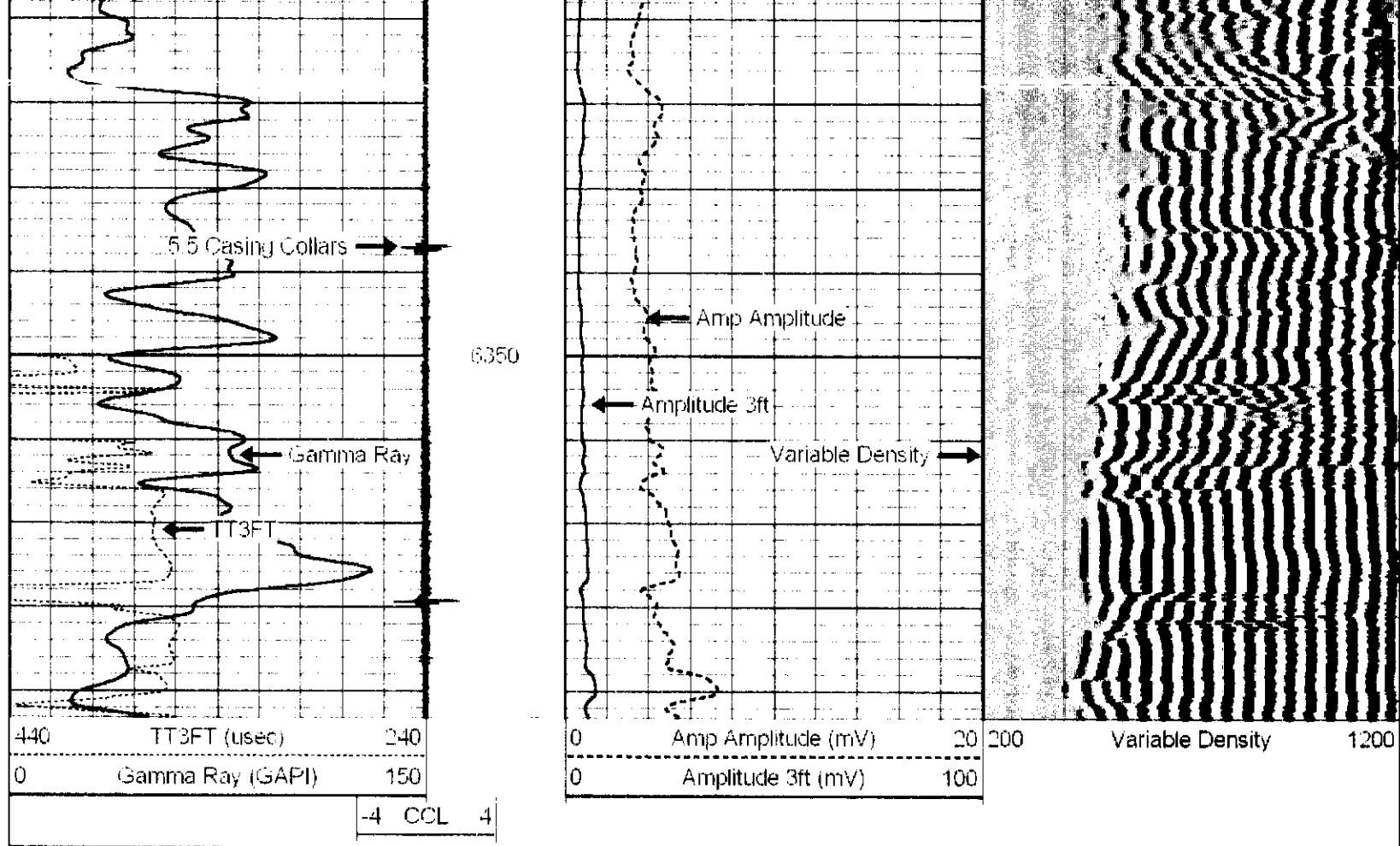








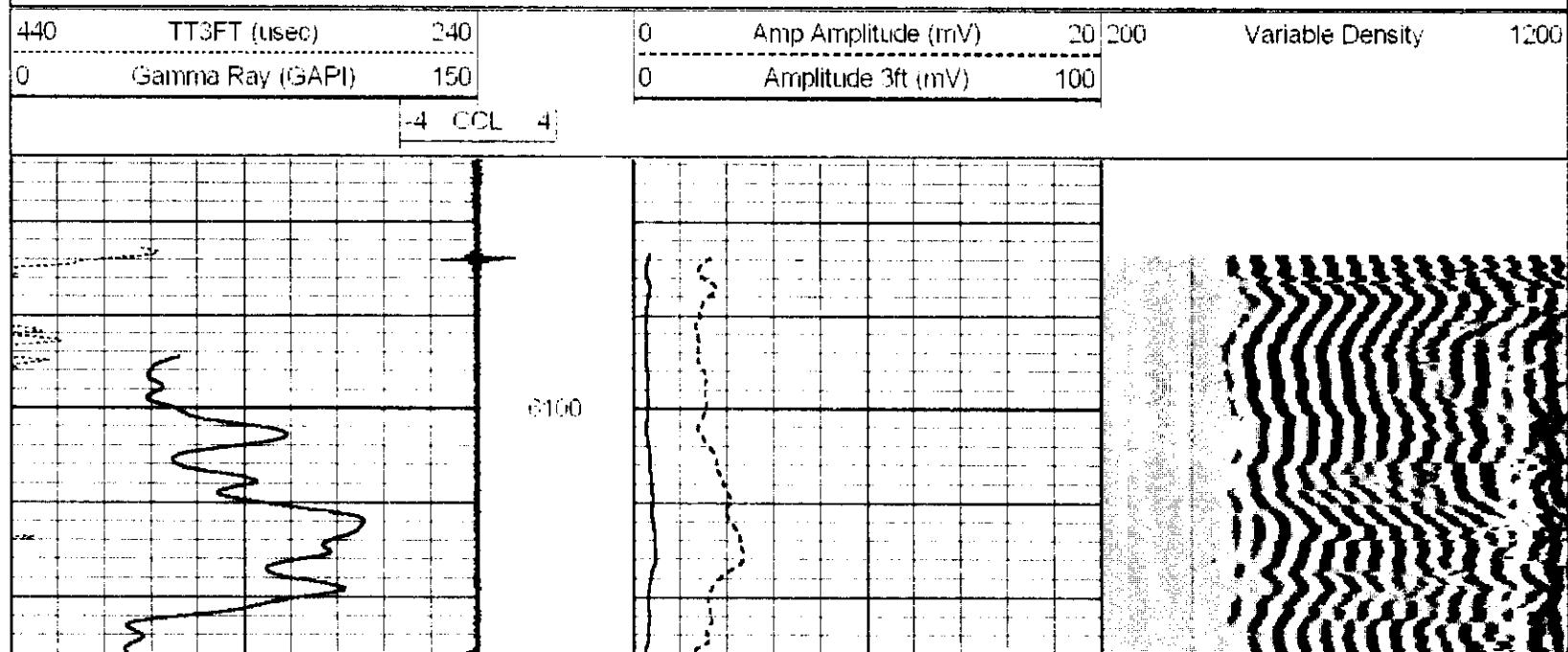


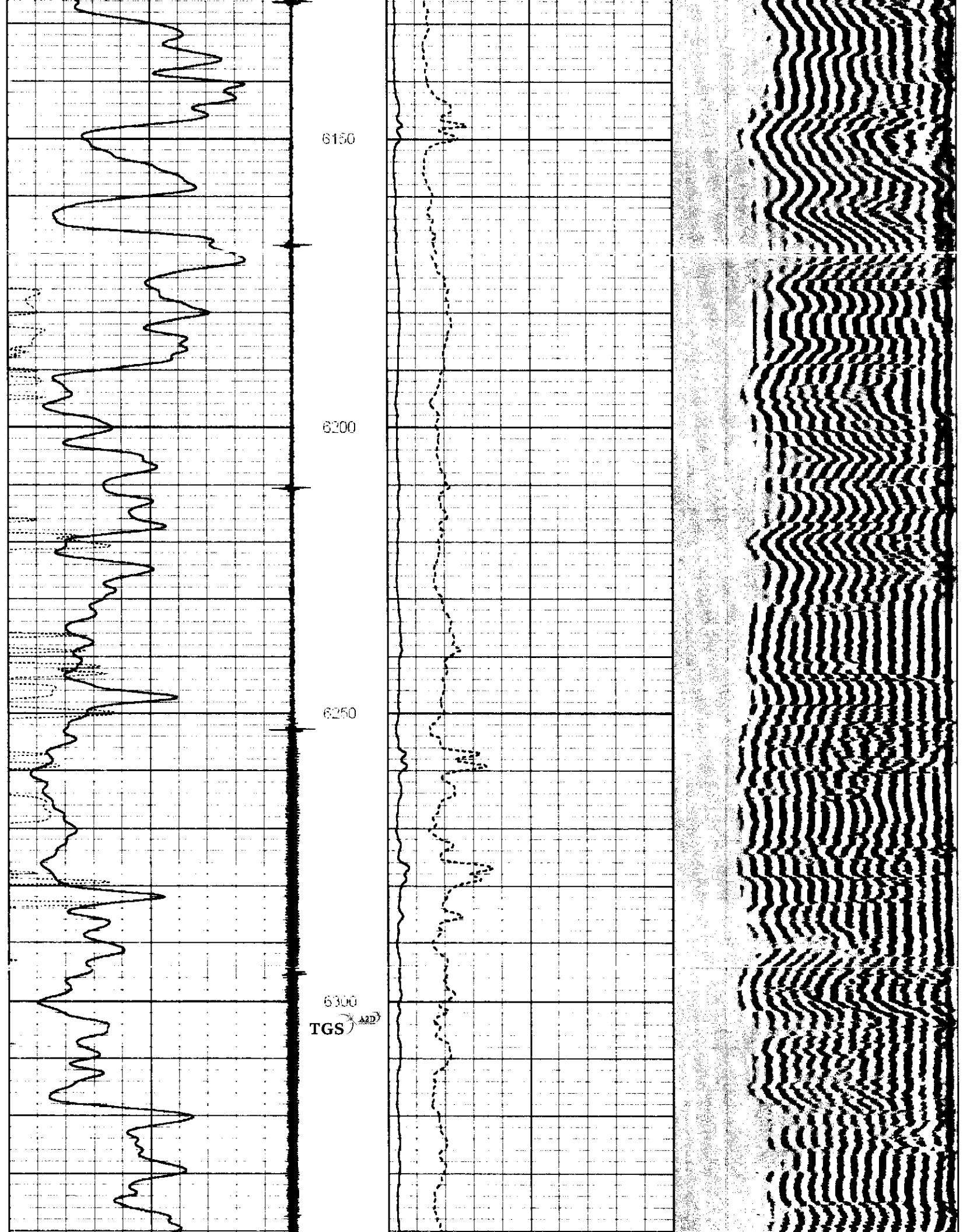


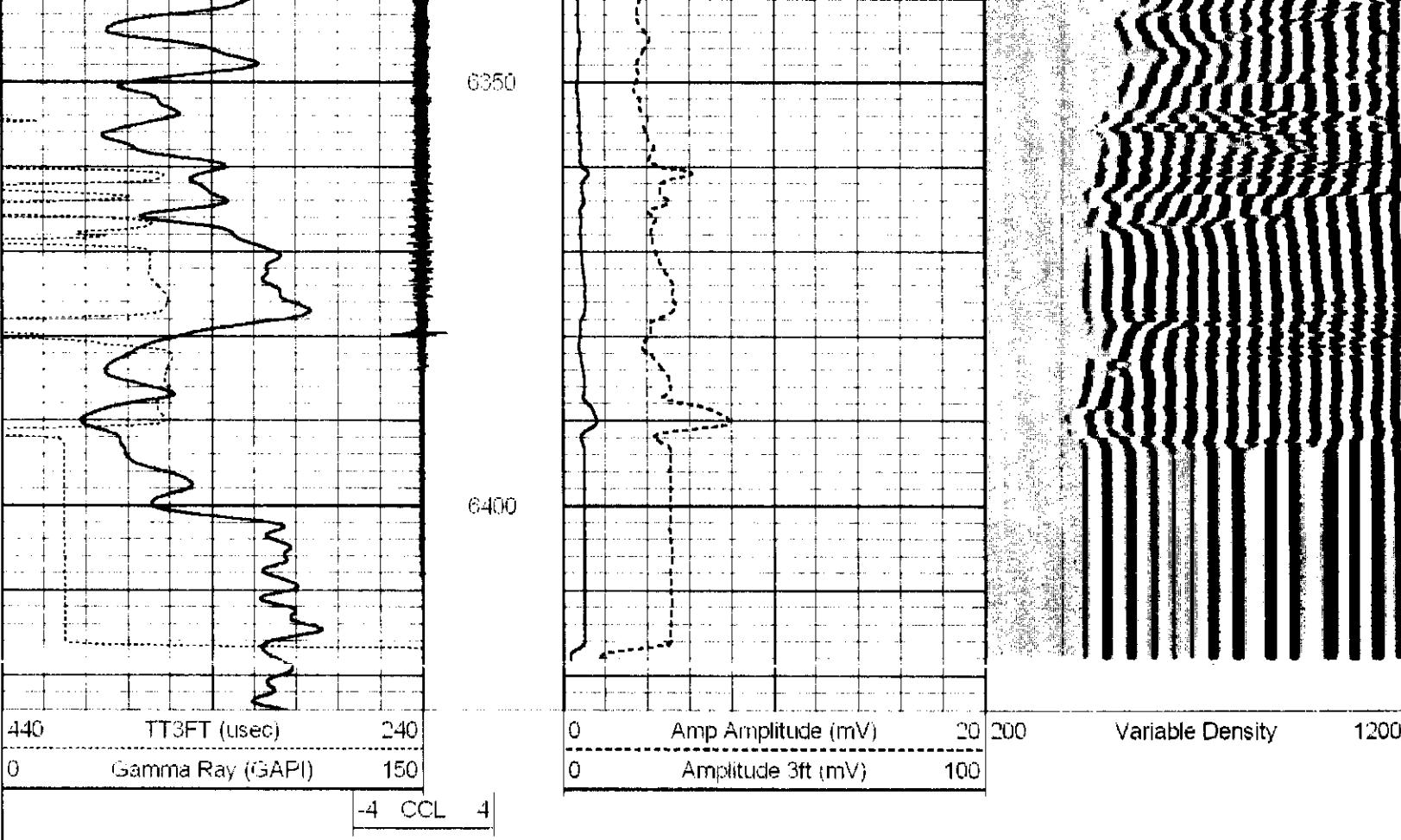
# CASED HOLE SOLUTIONS

# REPEAT PASS

Database File: v-2455.db  
 Dataset Pathname: pass?  
 Presentation Format: v-2455.cbl  
 Dataset Creation: Tue Jan 01 00:39:26 2002 by Log Std Casedhole 09061  
 Charted by: Depth in Feet scaled 1:240







Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
CCL	0.00		STNDRD Standard Cable Head  CCL-CCLTEK275 (4CCL2 75) 2 3/4" TEKCO LOGGING COLLAR LOCATOR	1.00	1.44	10.00
TEMP	-6.23		CENTTEK1.1 1 3/4" APPLIED CENTRALIZER	1.83	2.76	20.00
WVF3FT	-8.40		WBLTENGTTEMP-TERGTTEMP (8CBLT2.79.08 Tekco 2 3/4" Dual Receiver with Temp	2.90	1.75	10.00
WVF3FT	-6.16			2.75	102.00	

WVFCAL -12.65  
 WVFTEMP -12.65  
 WVFSYNC -12.65



		CENTTEK1.3 1 3/4" APPLIED CENTRALIZER	2.90	1.75	10.00
GR	-18.33	GR-GRSTEK1.6 (GRS1.1) 1 11/16" TEKCO SCINT. LOGGING GAMMA RAY	3.79	1.69	20.00

Dataset: v-2455.db: field/well/run1/pass3  
 Total Length: 21.50 ft  
 Total Weight: 172.00 lb  
 O.D. 2.75 in

**riley's®**

**ATTACHMENT NO. 8**

**OPEN HOLE LOG FOR THE UIC WELL**

# HALLIBURTON

**DUAL SPACED NEUTRON  
ARRAY COMPENSATED  
TRUE RESISTIVITY**

COMPANY		PETROGLYPH OPERATING COMPANY		PETROGLYPH OPERATING COMPANY	
WELL	UTE TRIBAL 03-05	WELL	UTE TRIBAL 03-05	WELL	UTE TRIBAL 03-05
FIELD	ANTELOPE CREEK	FIELD	ANTELOPE CREEK	FIELD	ANTELOPE CREEK
COMPANY	ANTERO CREEK	COMPANY	ANTERO CREEK	COMPANY	ANTERO CREEK
WELL	DUCHESNE	WELL	DUCHESNE	WELL	DUCHESNE
FIELD	DUCHESNE	FIELD	DUCHESNE	FIELD	DUCHESNE
COUNTY	DUCHESNE	COUNTY	DUCHESNE	COUNTY	DUCHESNE
STATE	UTAH	STATE	UTAH	STATE	UTAH
Permanent Datum	GL	Permanent Datum	GL	Permanent Datum	GL
Log measured from	KB	Log measured from	KB	Log measured from	KB
Drilling measured from	KB	Drilling measured from	KB	Drilling measured from	KB
Date	05-JUL-10	Date	05-JUL-10	Date	05-JUL-10
Run No.	ONE	Run No.	ONE	Run No.	ONE
Depth - Driller	6474.00 ft	Depth - Driller	6474.00 ft	Depth - Driller	6474.00 ft
Bottom - Logged Interval	6452.0 ft	Bottom - Logged Interval	6452.0 ft	Bottom - Logged Interval	6452.0 ft
Top - Logged Interval	70.0 ft	Top - Logged Interval	70.0 ft	Top - Logged Interval	70.0 ft
Casing - Drill	8.625 in	Casing - Drill	8.625 in	Casing - Drill	8.625 in
Casing - Logger	512.0 ft	Casing - Logger	512.0 ft	Casing - Logger	512.0 ft
Bit Size	7.875 in	Bit Size	7.875 in	Bit Size	7.875 in
Type Fluid in Hole	WATER / DAP	Type Fluid in Hole	WATER / DAP	Type Fluid in Hole	WATER / DAP
Density	9.0 API	Density	9.0 API	Density	9.0 API
pH	7.00 pH	pH	7.00 pH	pH	7.00 pH
Source of Sample	MUD TANK	Source of Sample	MUD TANK	Source of Sample	MUD TANK
Rm @ Meas. Temperature	0.60 ohmm	Rm @ Meas. Temperature	0.60 ohmm	Rm @ Meas. Temperature	0.60 ohmm
Rmf @ Meas. Temp.	0.73 ohmm	Rmf @ Meas. Temp.	0.73 ohmm	Rmf @ Meas. Temp.	0.73 ohmm
Source Rmf	Rmc	Source Rmf	Rmc	Source Rmf	Rmc
Rm @ BHT	0.30 ohmm	Rm @ BHT	0.30 ohmm	Rm @ BHT	0.30 ohmm
Time Since Circulation	28.0 hr	Time Since Circulation	28.0 hr	Time Since Circulation	28.0 hr
Time on Bottom	05-04-10 11:50	Time on Bottom	05-04-10 11:50	Time on Bottom	05-04-10 11:50
Max. Res. Temperature	156.0 degF	Max. Res. Temperature	156.0 degF	Max. Res. Temperature	156.0 degF
Equipment	Location	Equipment	Location	Equipment	Location
Recorded By	K. NORMAND	Recorded By	A. POLLARD	Recorded By	A. POLLARD
Witnessed By		Witnessed By		Witnessed By	

Fold here

Service Ticket No.: 7478554      API Serial No.: 43013342890000      PGM Version: WL IN SITE R2.6.1 (Build 9)

**CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE**

**RESISTIVITY SCALE CHANGES**

Date	Sample No.	Type Log	Depth	Scale Up Hole	Scale Down Hole
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
Ph	Fluid Loss				
Source of Sample					
Rm @ Meas. Temp.	0	0			
Rmf @ Meas. Temp.	0	0			
Rmc @ Meas. Temp.	0	0			
Source Rmf	Rmc				
Rm @ BHT	0	0			
Rmf @ BHT	0	0			
Rmc @ BHT	0	0			

**RESISTIVITY EQUIPMENT DATA**

Rm @ Meas. Temp.	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Rmf @ Meas. Temp.	ONE	ACRT-I207S842	N/A	1.5" STANDOFF	N/A
Rmc @ Meas. Temp.					
Source Rmf	Rmc				
Rm @ BHT	0	0	0	0	0
Rmf @ BHT	0	0	0	0	0
Rmc @ BHT	0	0	0	0	0

**EQUIPMENT DATA**

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11277435	Serial No.		Serial No.	10923744	Serial No.	10917118
Model No.	GTET	Model No.		Model No.	SDLT-I	Model No.	DSNT-I
Diameter	3.625"	No. of Cent.		Diameter	4.5"	Diameter	3.625"
Detector Model No.	GTET	Spacing		Log Type	GAMMA-GAMMA	Log Type	THERMAL
Type	SCINT.			Source Type	Cs137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	6246GW	Serial No.	21480B
Distance to Source	10'	FWDA [Y/N]		Strength	1.5 Ci	Strength	15 Ci

**LOGGING DATA**

GENERAL		GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run	Depth	Speed	Scale	Run	Depth	Speed	Scale	Run	Depth

Run	Depth		Speed		Counts		Matrix	Counts		Matrix	Counts		Matrix
	No.	From	To	f/min	L	R		L	R		L	R	
ONE	6464	70	REC.	0	200			30%	-10%	2.68 g/cc	30%	-10%	SAND
DIRECTIONAL INFORMATION													
Maximum Deviation								KOP					
Remarks:													
TOOL STRING CONFIGURATION: RWCH/GTET/DSNT/SDLT/FLEX/ACRUMS													
TENSION PULLS AND HOLE RUGOSITY MAY AFFECT LOG QUALITY AND REPEATABILITY													
ANNULAR HOLE VOLUME CALCULATED USING 6.5 INCH CASING													
CHLORIDES: 100 ppm													
LATITUDE: 40.07881° N													
LONGITUDE: 110.21516° W													
CREW: C. COHRS, M. BARTHOLOMEUSZ													
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - VERNAL, UT (435) 789-2550													RIG: AZTEC #184
HALLIBURTON													
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.													
HALLIBURTON													

## HALLIBURTON

### PARAMETERS REPORT

Depth (ft)	Tool Name	Description	Value	Units
TOP				
SHARED	Bit Size		7.875	in
SHARED	Use Bit Size instead of Caliper for all applications.		No	
SHARED	Borehole Fluid Weight		9.000	ppg
SHARED	Oil Based Mud System?		No	
SHARED	Mud Resistivity		0.600	ohmm
SHARED	Temperature of Mud		87.0	degF
SHARED	Logging Interval Is Cased?		No	
SHARED	AHV Casing OD		5.500	in
SHARED	Surface Temperature		75.0	degF
SHARED	Total Well Depth		6464.00	ft
SHARED	Bottom Hole Temperature		150.0	degF
Rwa / CrossPlot	Process Crossplot?		Yes	
Rwa / CrossPlot	Select Source of F		Automatic	
Rwa / CrossPlot	Archie A factor		0.6200	
Rwa / CrossPlot	Archie M factor		2.1500	
Rwa / CrossPlot	Rmf Reference		0.10	ohmm
Rwa / CrossPlot	Rmf Ref Temp		75.00	degF
Rwa / CrossPlot	Resistivity of Formation Water		0.05	ohmm
GTET	Process Gamma Ray?		Yes	
GTET	Gamma Tool Standoff		0.000	in
GTET	Process Gamma Ray EVR?		No	
DSNT	Process DSN?		Yes	
DSNT	Process DSN EVR?		No	
DSNT	Neutron Lithology		Sandstone	
DSNT	DSN Standoff - 0.25 in (6.35 mm) Recommended		0.000	in
DSNT	Temperature Correction Type		None	

DSNT	DSN Pressure Correction Type	None
DSNT	View More Correction Options	No
DSNT	Use TVD for Gradient Corrections?	No
DSNT	Logging Horizontal Water Tank?	No
SDLT	Process Density?	Yes
SDLT	Process Density EVR?	No
SDLT	Is Hole Air Drilled?	No
SDLT	Logging Calibration Blocks?	No
SDLT	SDLT Pad Temperature Valid?	Yes
SDLT	Disable temperature warning	No
SDLT	Weighted Mud Correction Type?	None
SDLT	Formation Density Matrix	2.680 g/cc
SDLT	Formation Density Fluid	1.000 g/cc
SDLT	Process Caliper Outputs?	Yes
SDLT	Process MicroLog Outputs?	Yes
ACRt	Process ACRt?	Yes TGS
ACRt	Minimum Tool Standoff	1.50 in
ACRt	Temperature Correction Source	FP Lwr & FP Upr
ACRt	Tool Position	Ecentered
ACRt	Rmud Source	Mud Cell
ACRt	Minimum Resistivity for MAP	0.20 ohmm
ACRt	Maximum Resistivity for MAP	200.00 ohmm

BOTTOM

Data: UTE\_TRIBAL03\_05\0001 IQ\_TRIPLEV.DDL

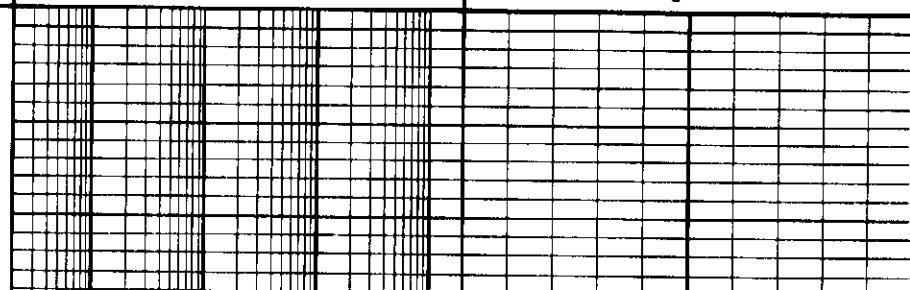
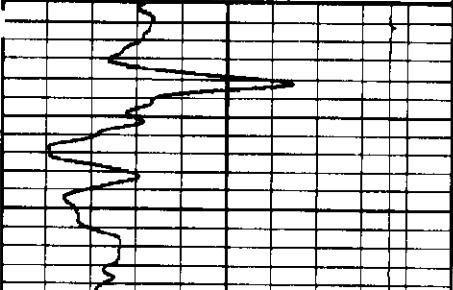
Date: 05-Jul-10 12:20:21

**HALLIBURTON**

Plot Time: 05-Jul-10 14:34:03  
 Plot Range: 88 ft to 6478 ft  
 Data: UTE\_TRIBAL03\_05\Well Based\MAIN\  
 Plot File: \TRIPLEV\_QEP\_TRIPLE\_M

**MAIN PASS 5" = 100'**

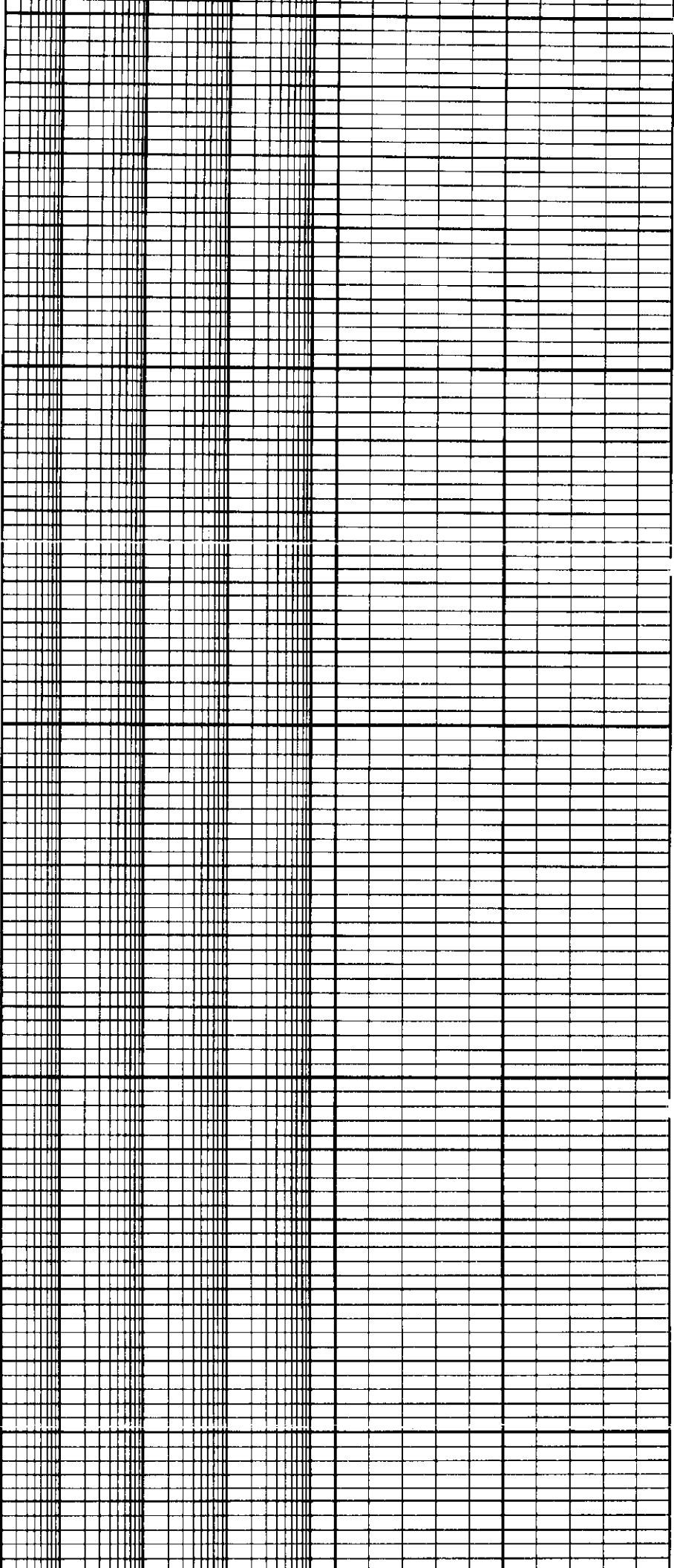
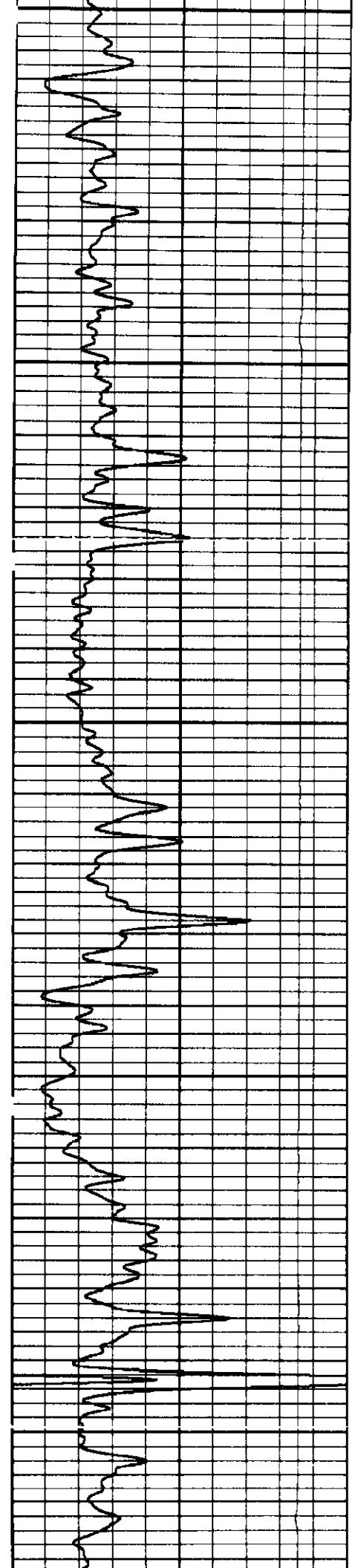
0	GAMMA RAY	200		0.2	RT90	2K			
	api			0.2	RT60	2K	30	DEN POROSITY	-10
6	CALIPER	16	AHV	0.2	RT30	2K	30	NEU POROSITY	-10
	inches			0.2	RT20	2K	0	PE	10
0	SP	100	BHV	0.2	RT10	2K	-0.26	DENSITY COR.	0.25
	millivolts			0.2	RT0	2K			
10000	TENSION	0	1 : 240						
	pounds		FT.						

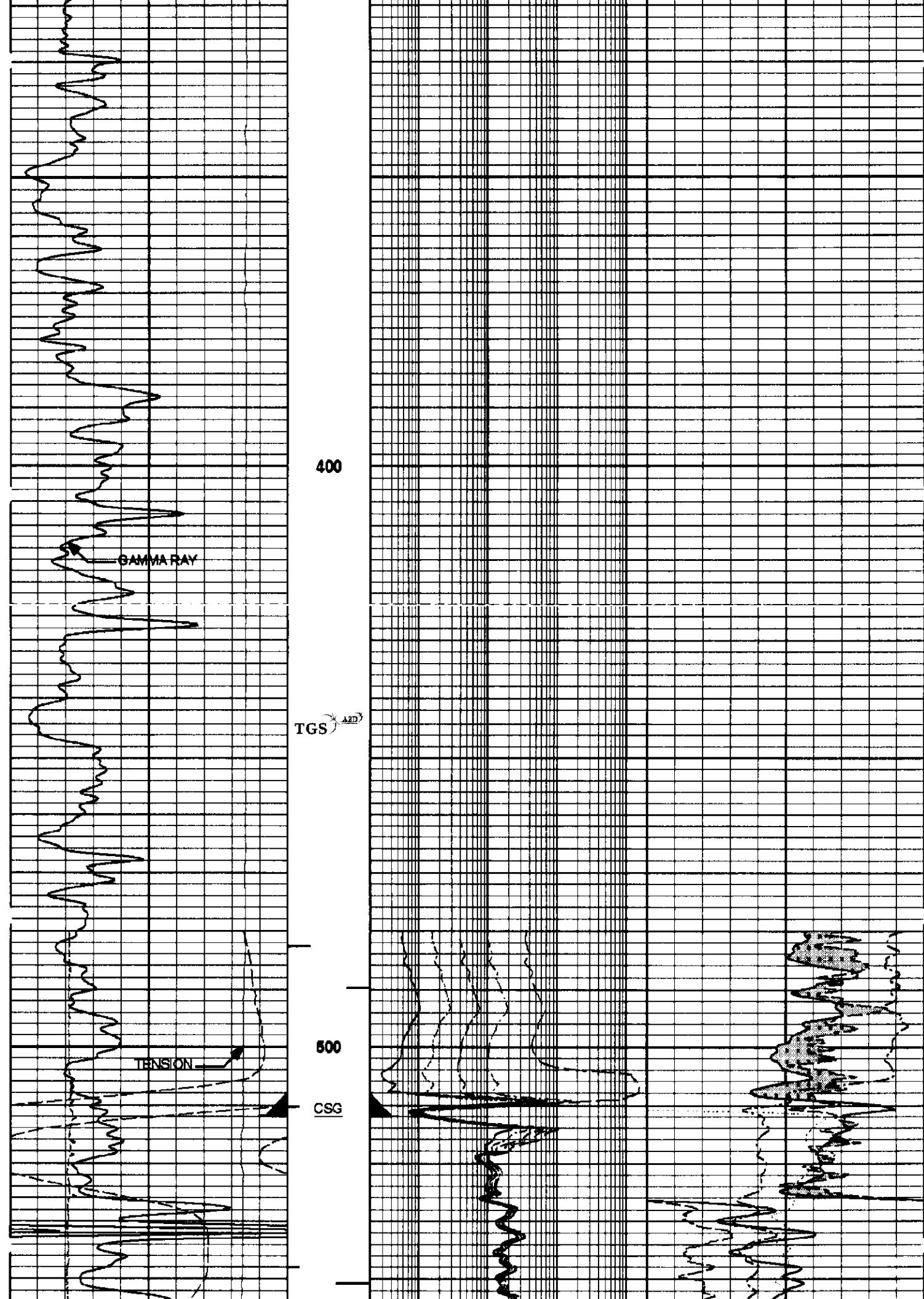


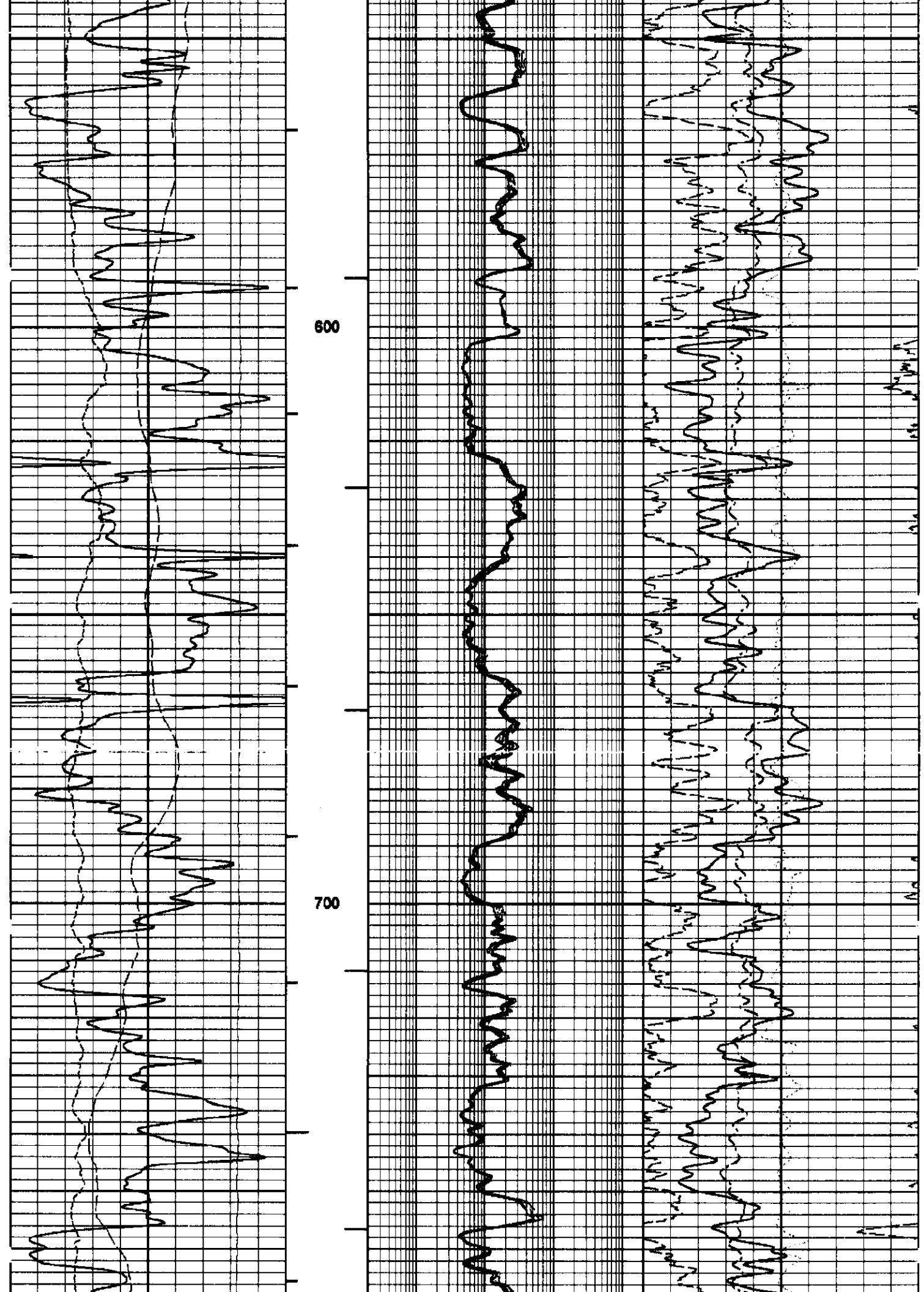
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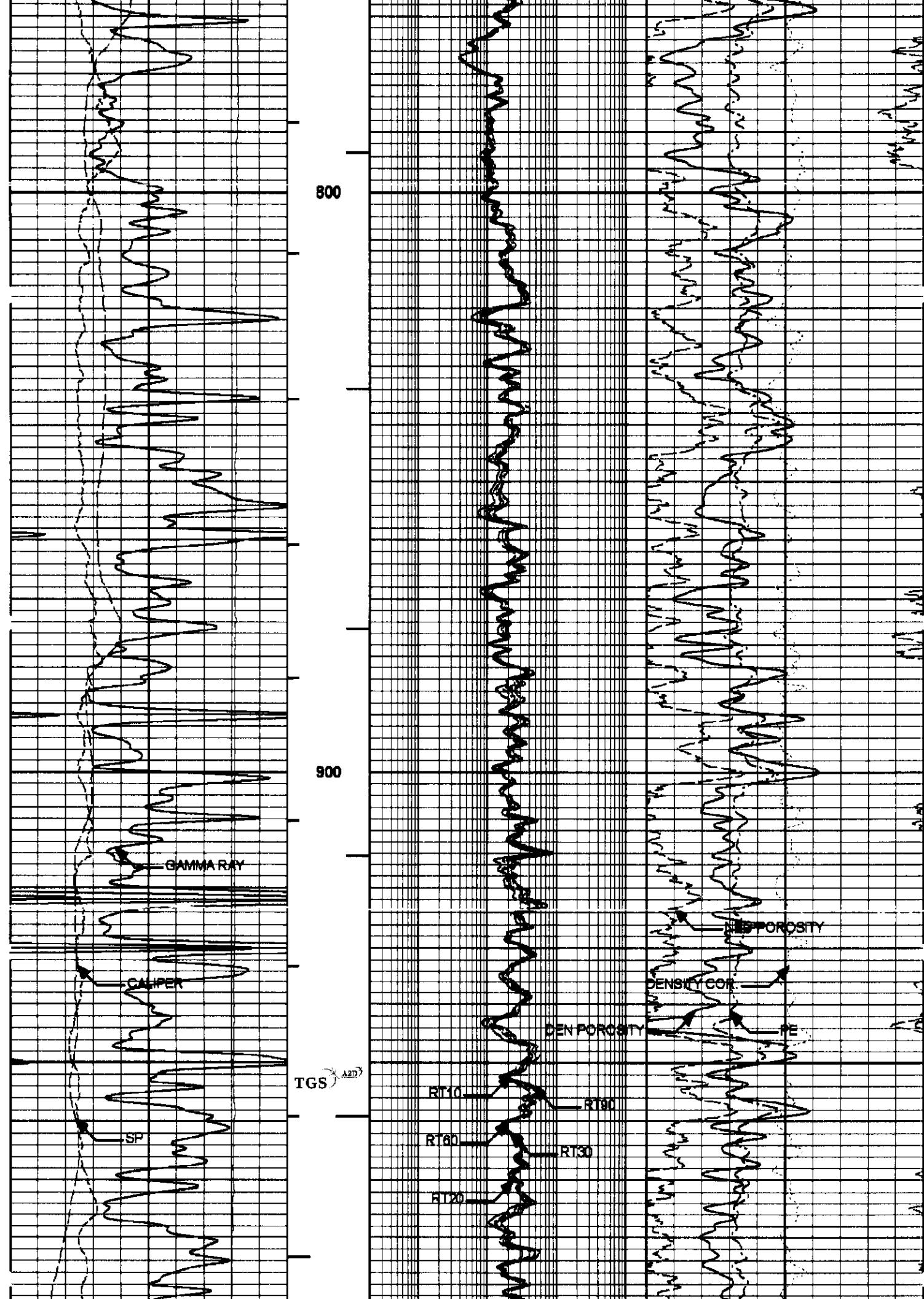
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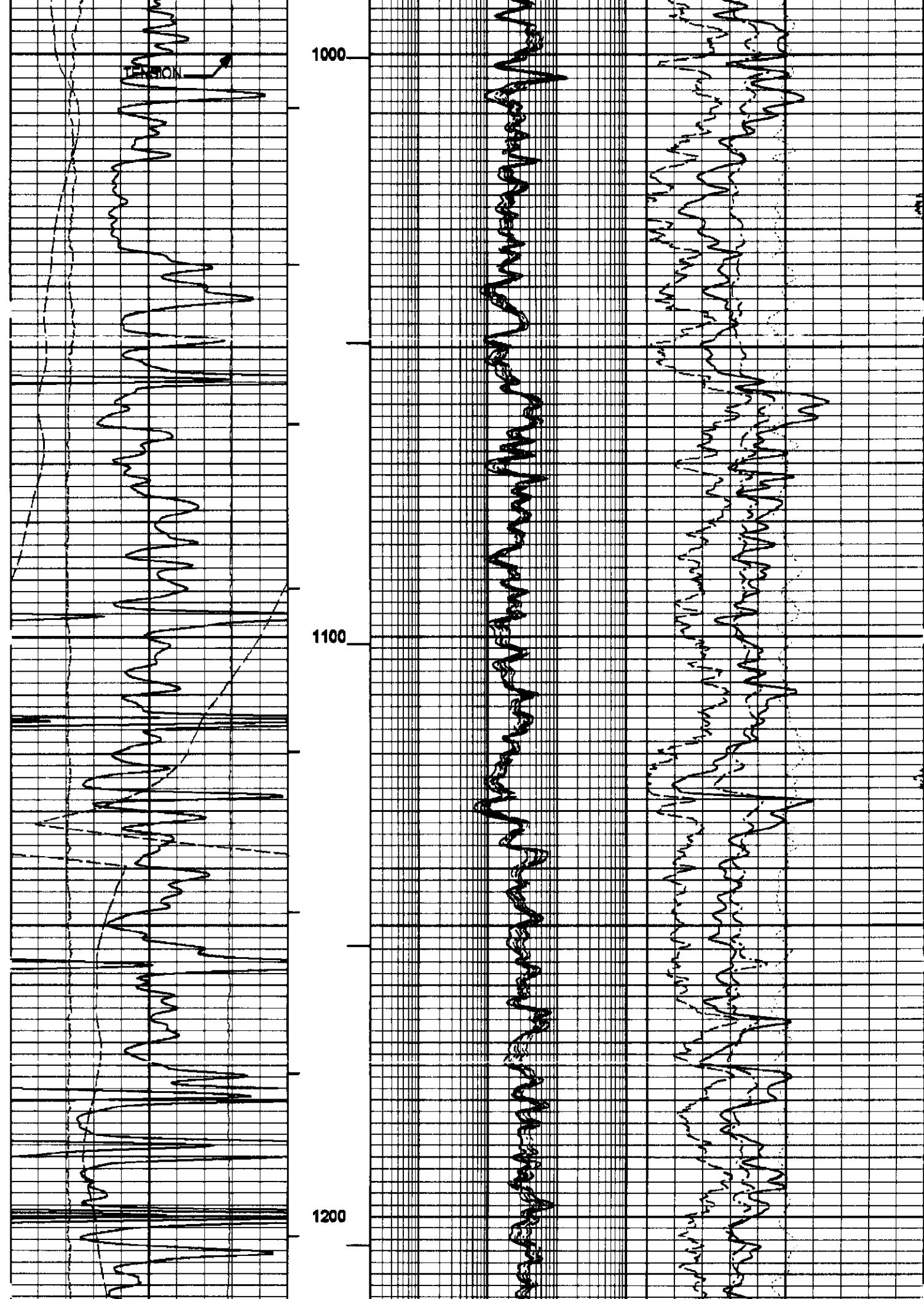
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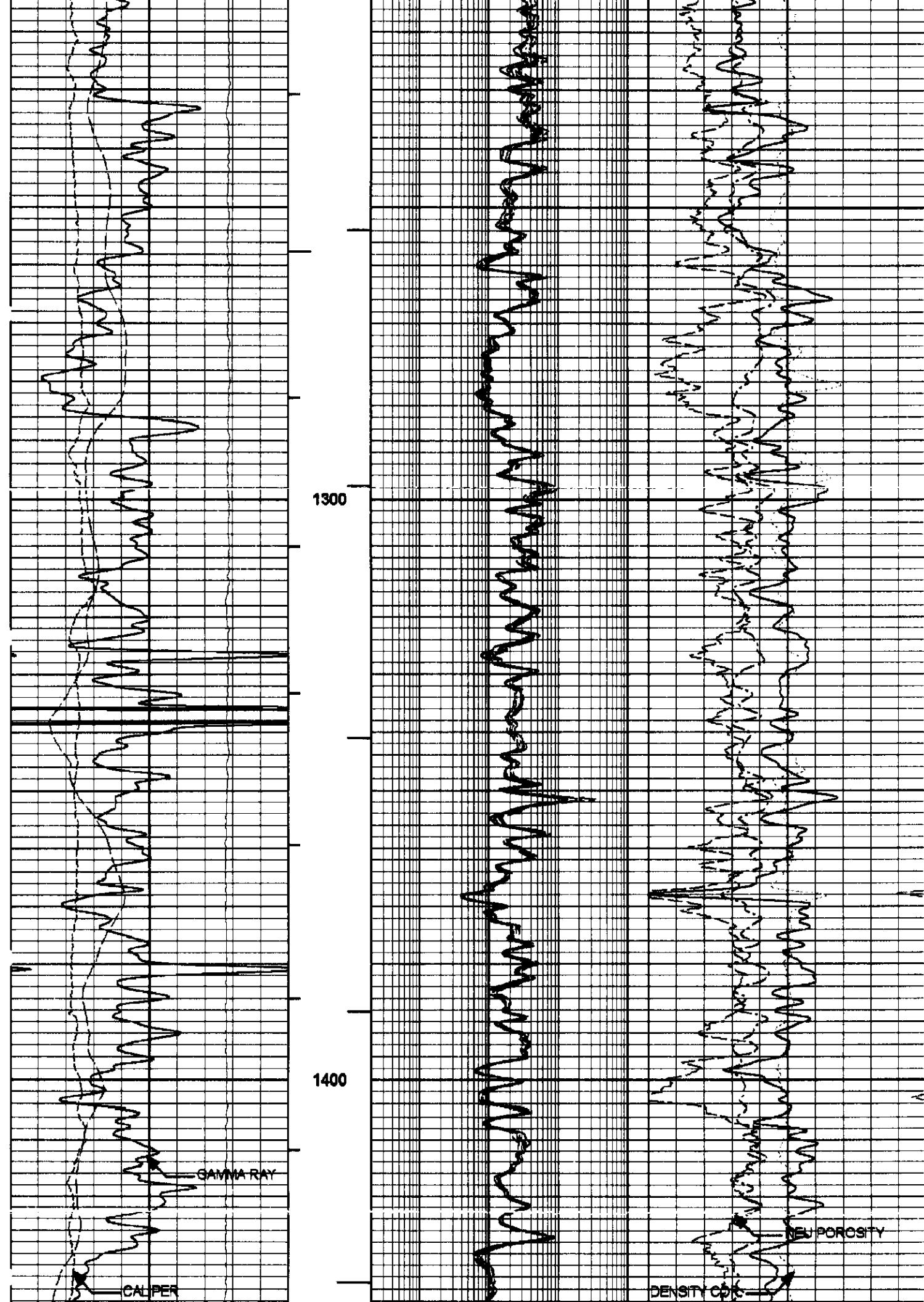


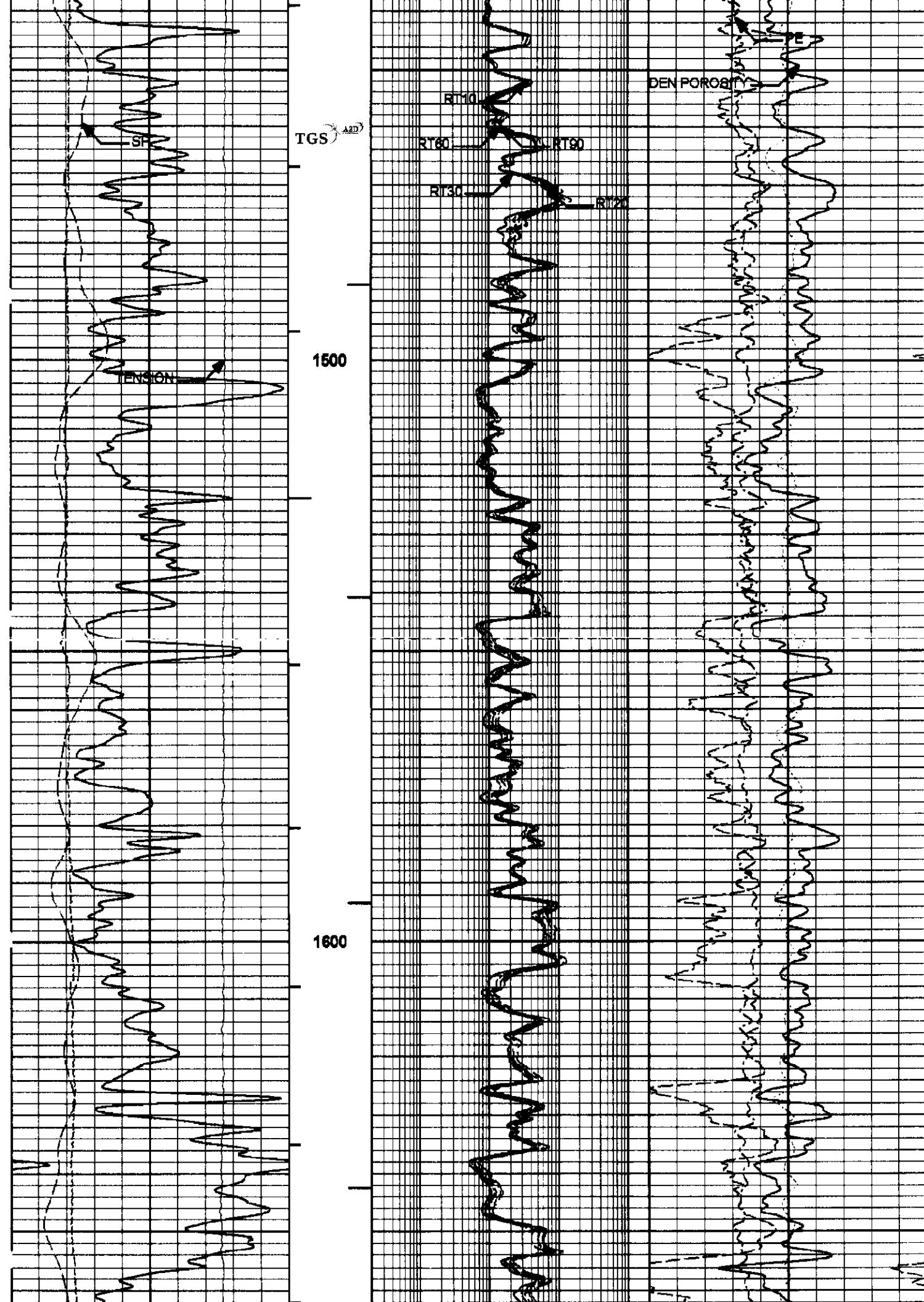


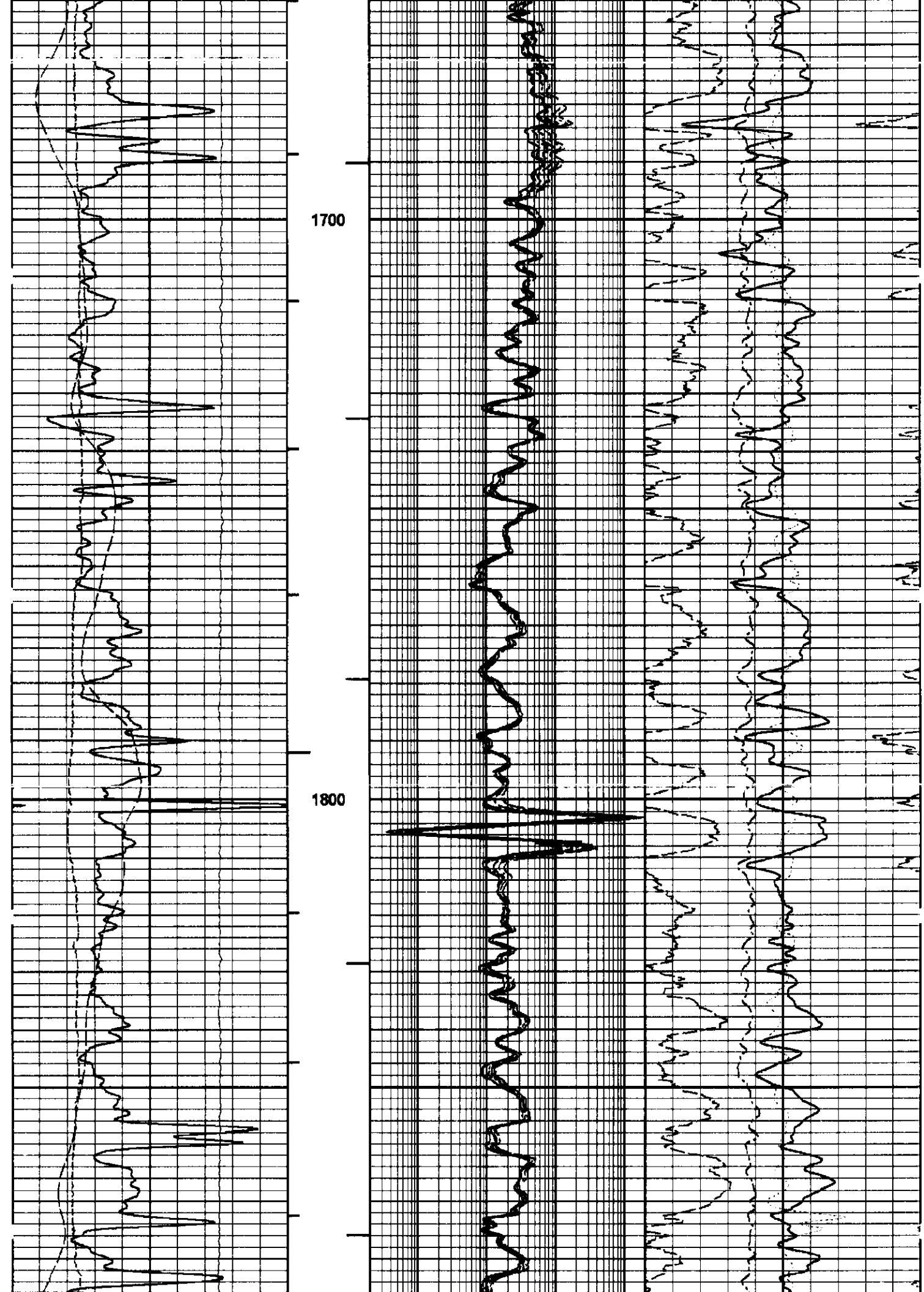


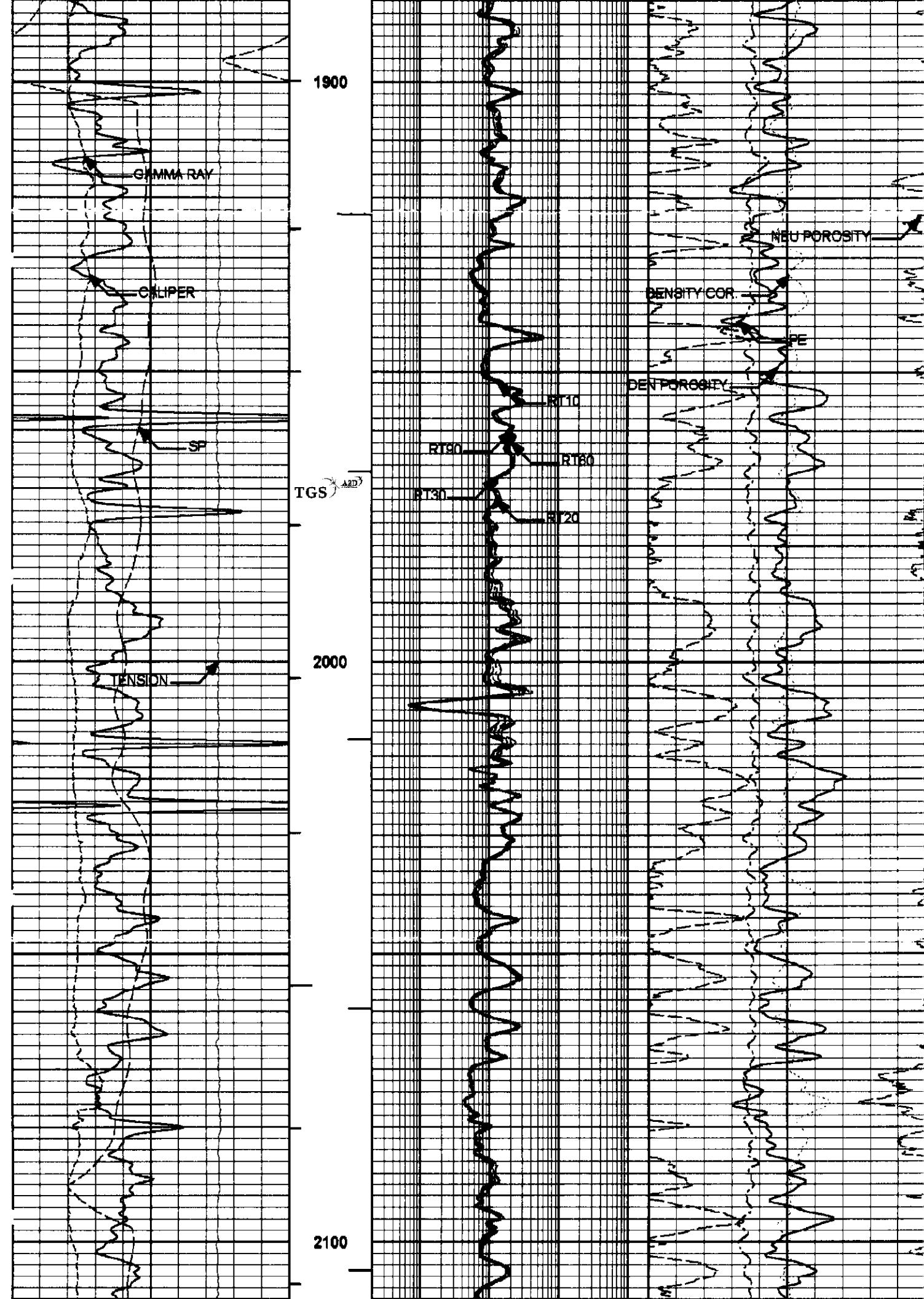


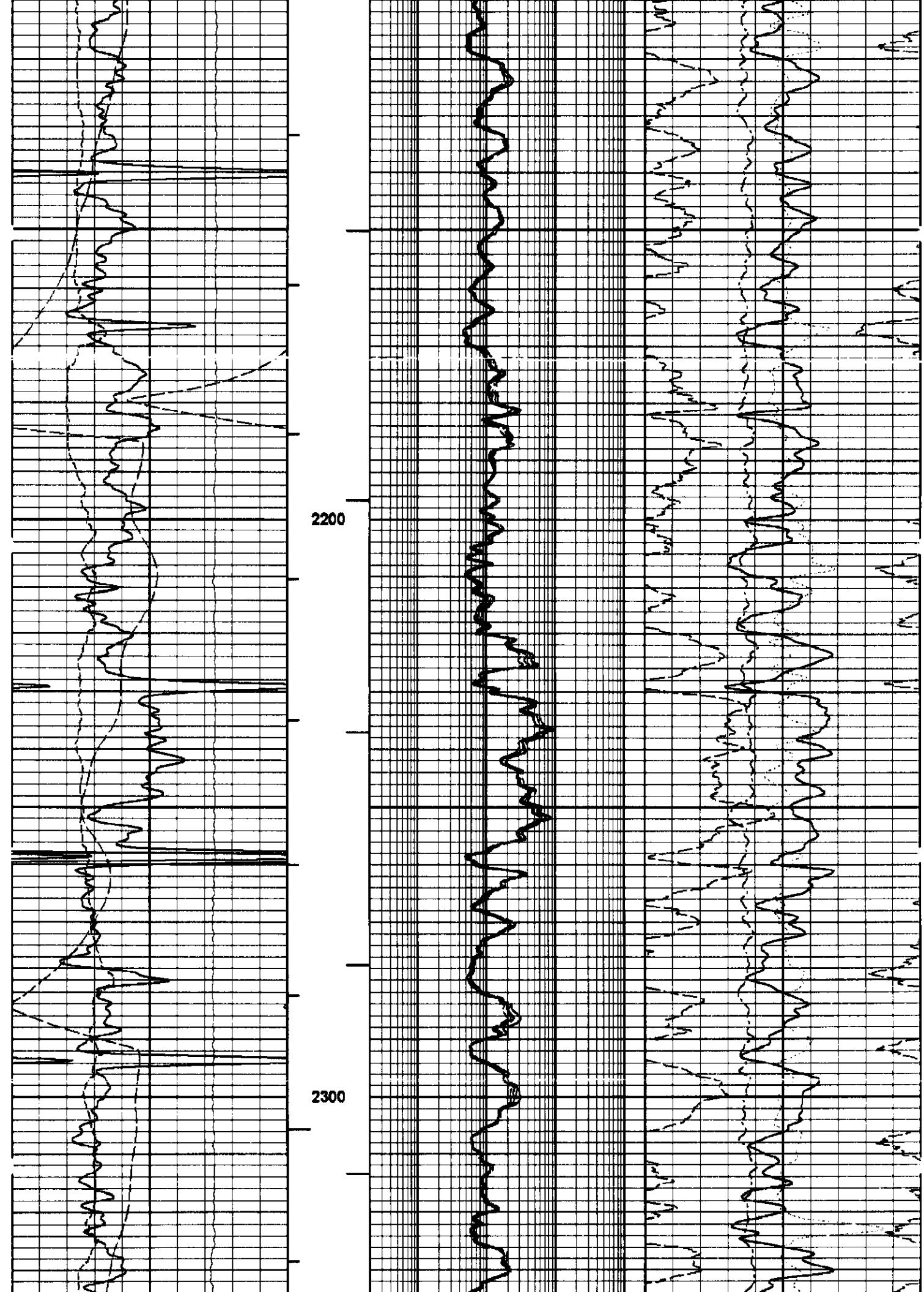


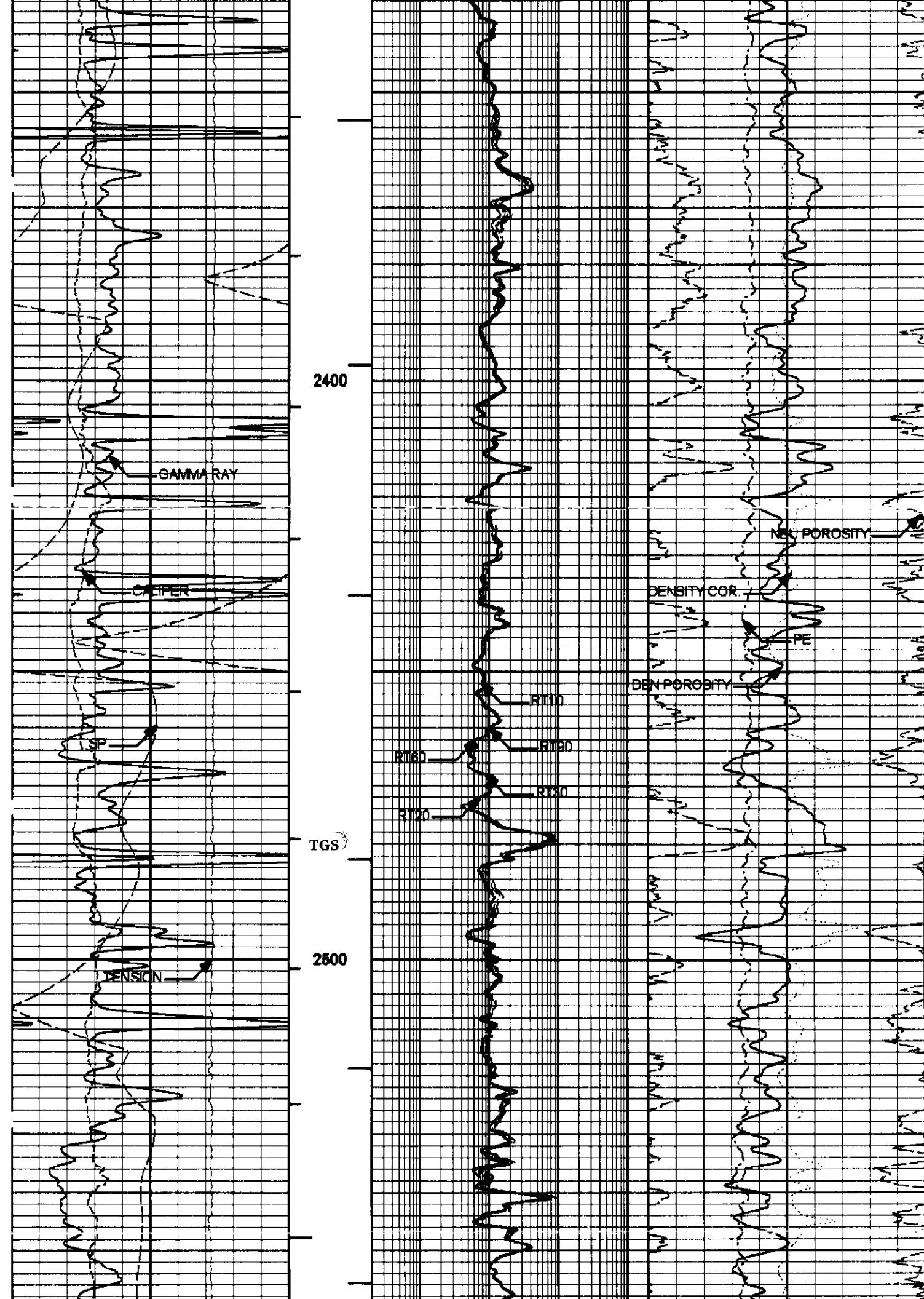


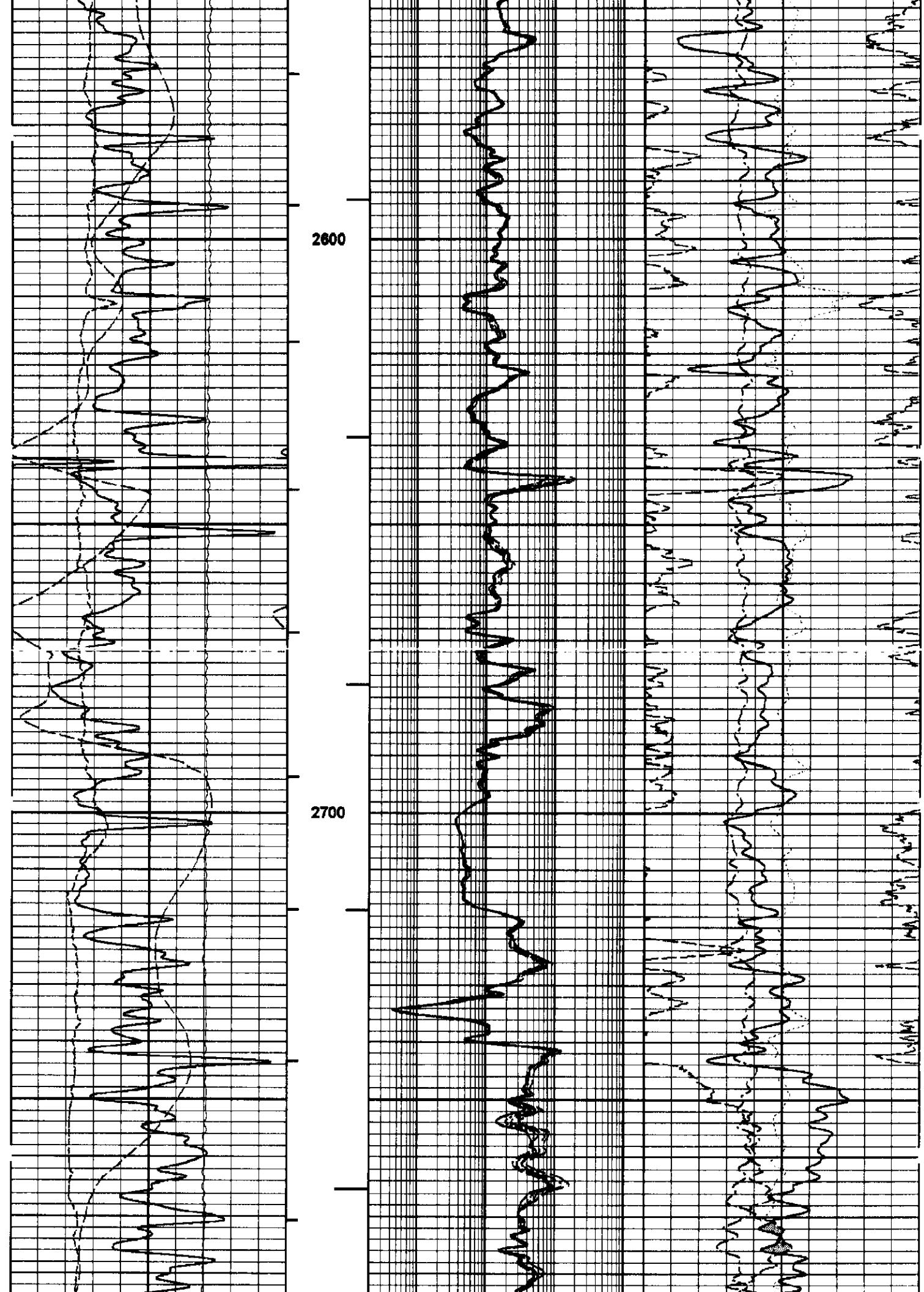


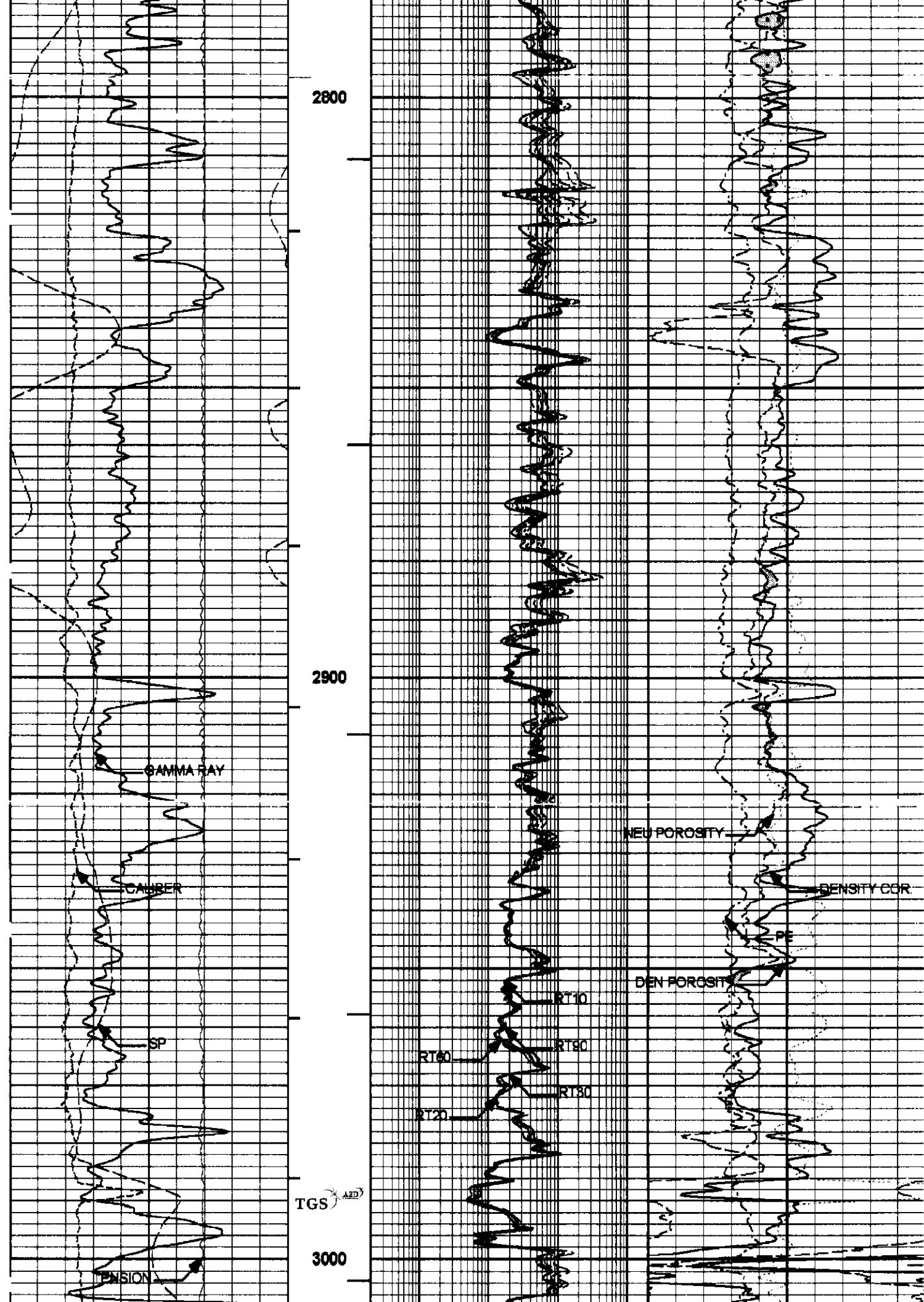


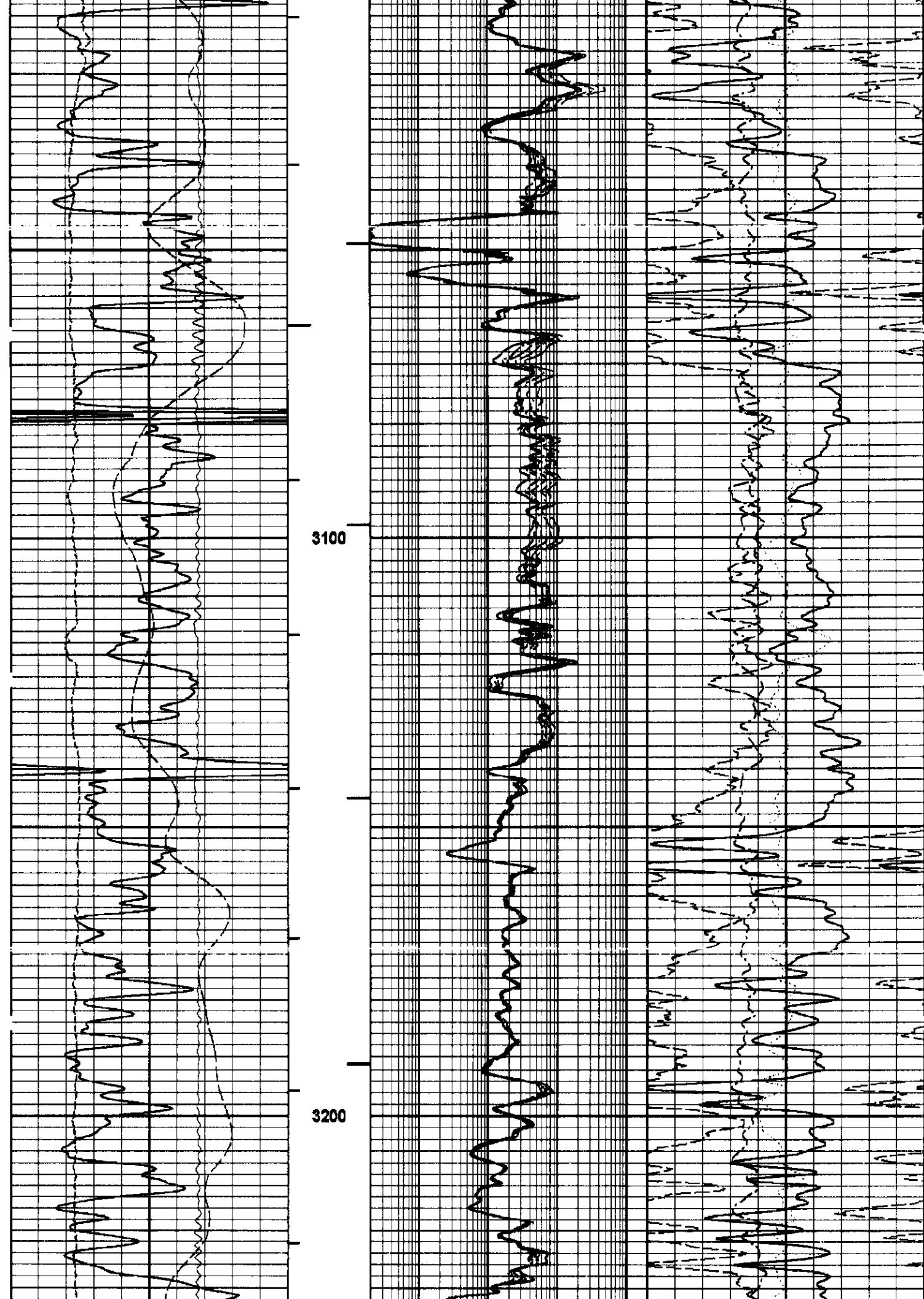


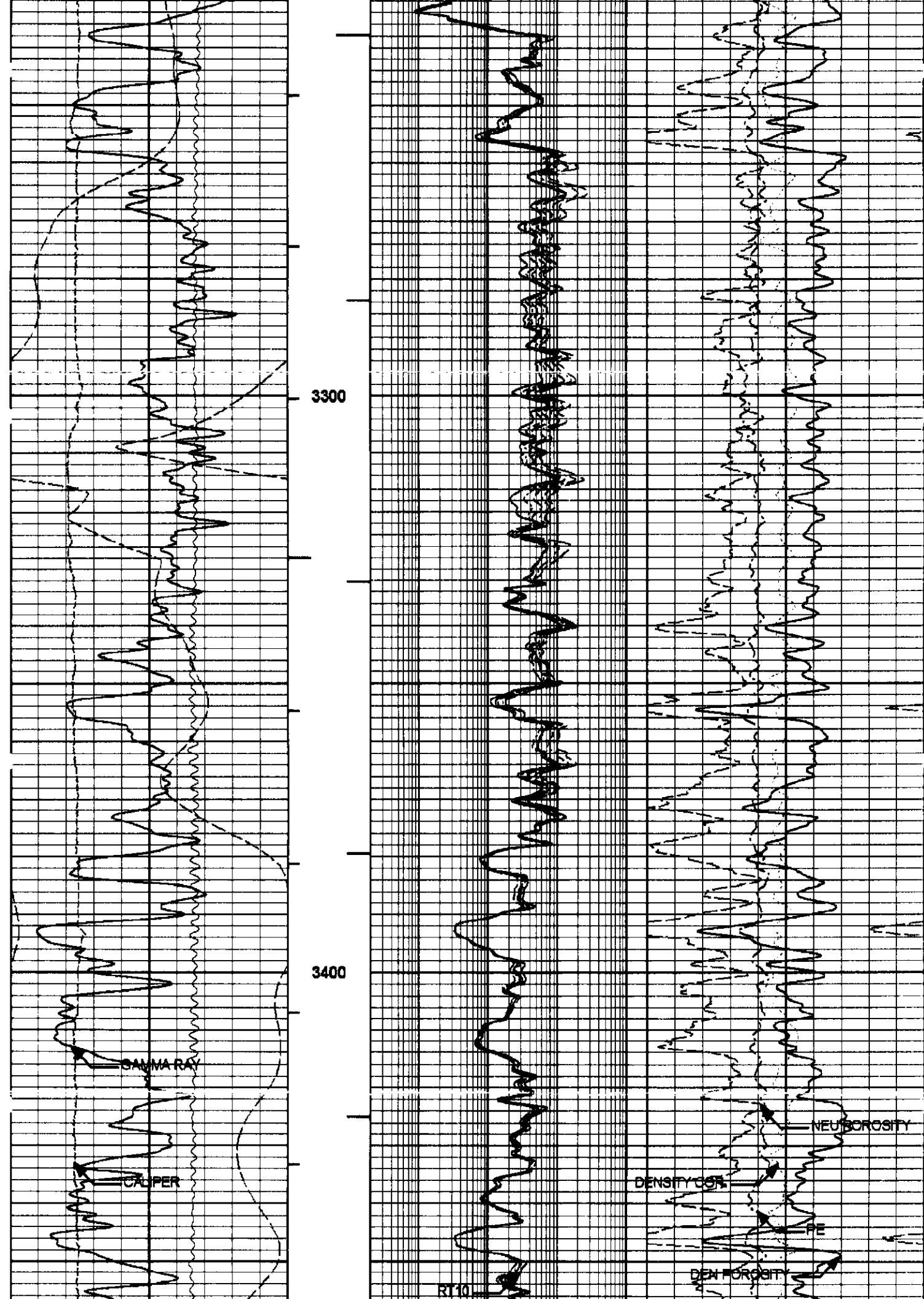


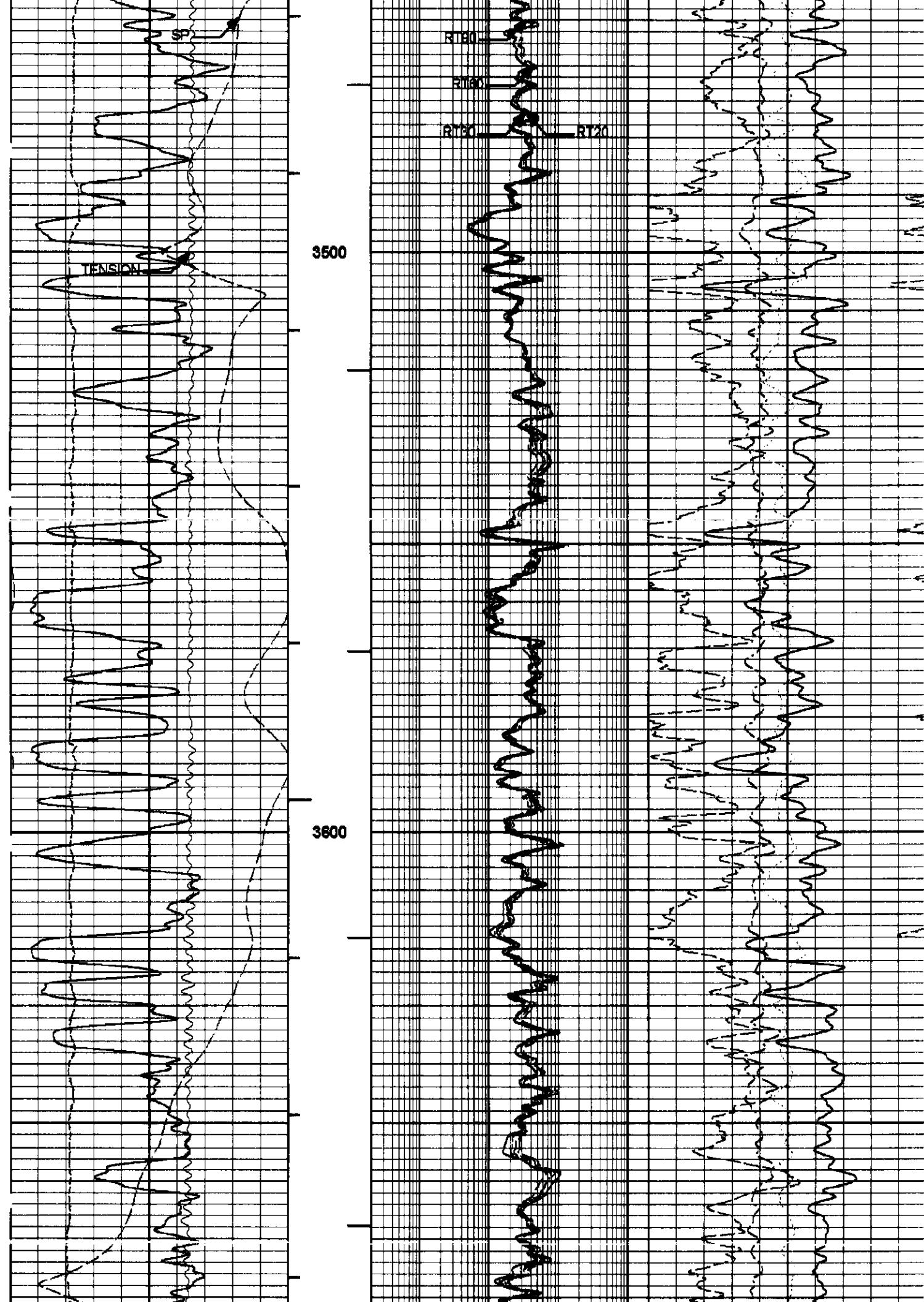








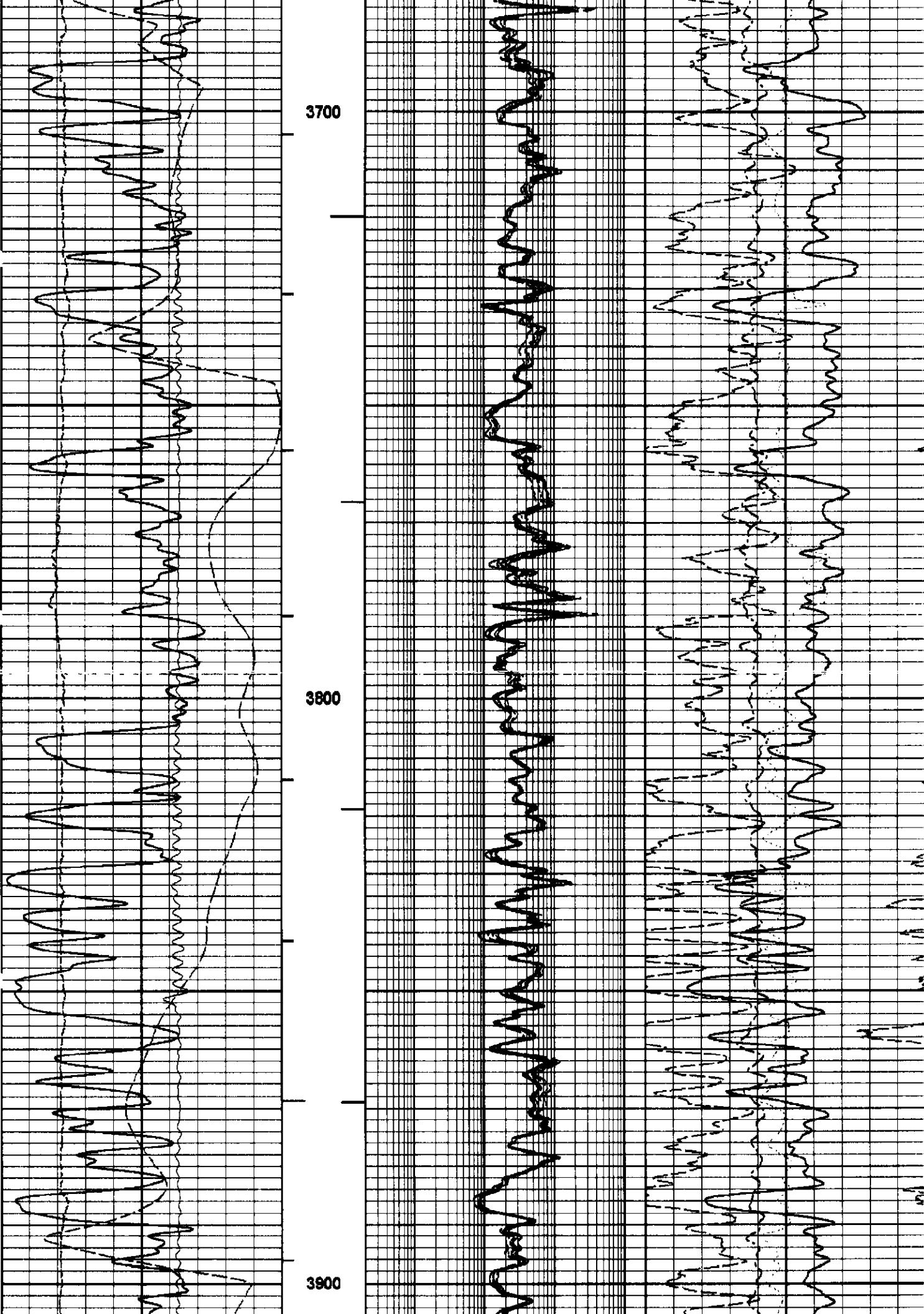


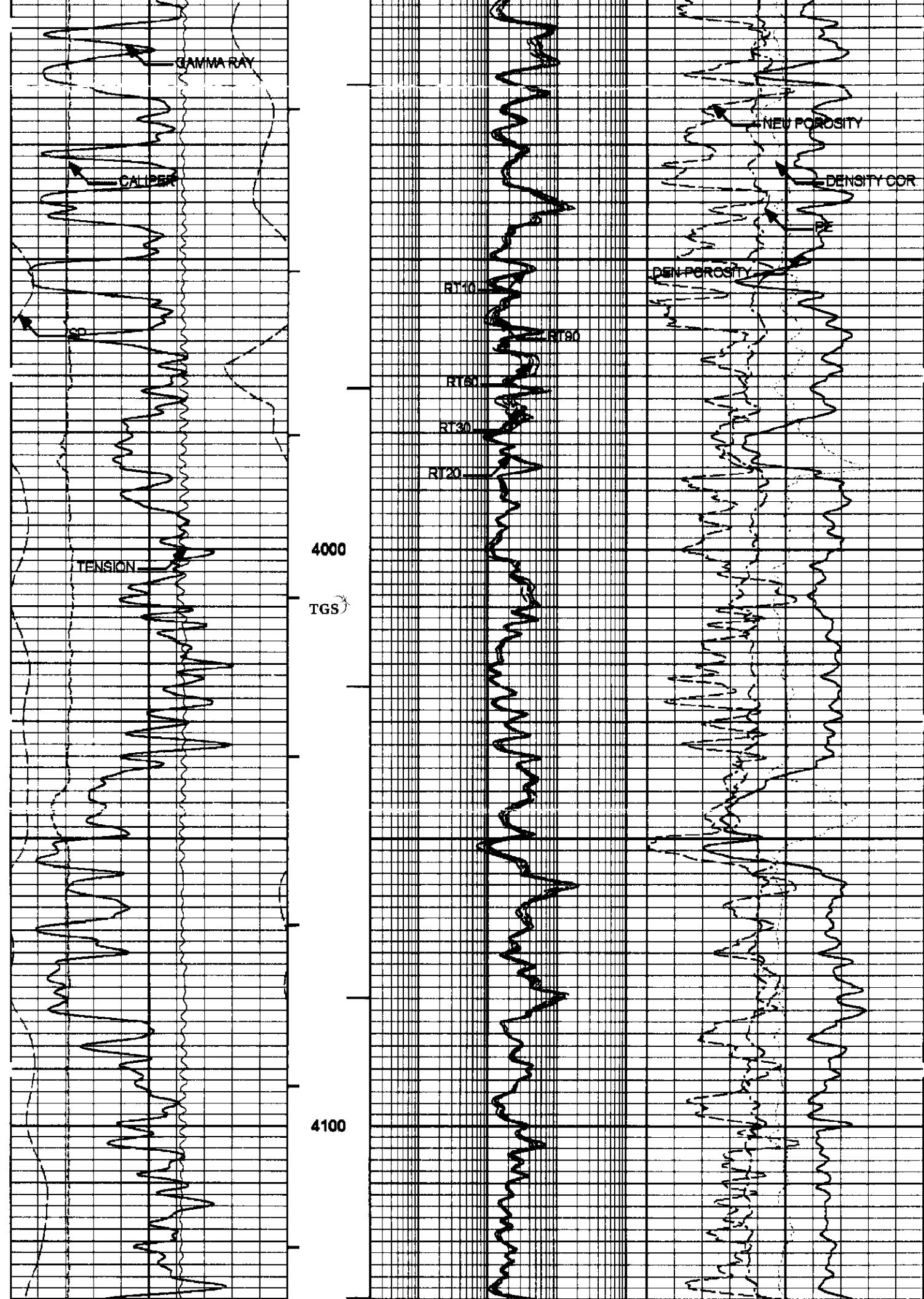


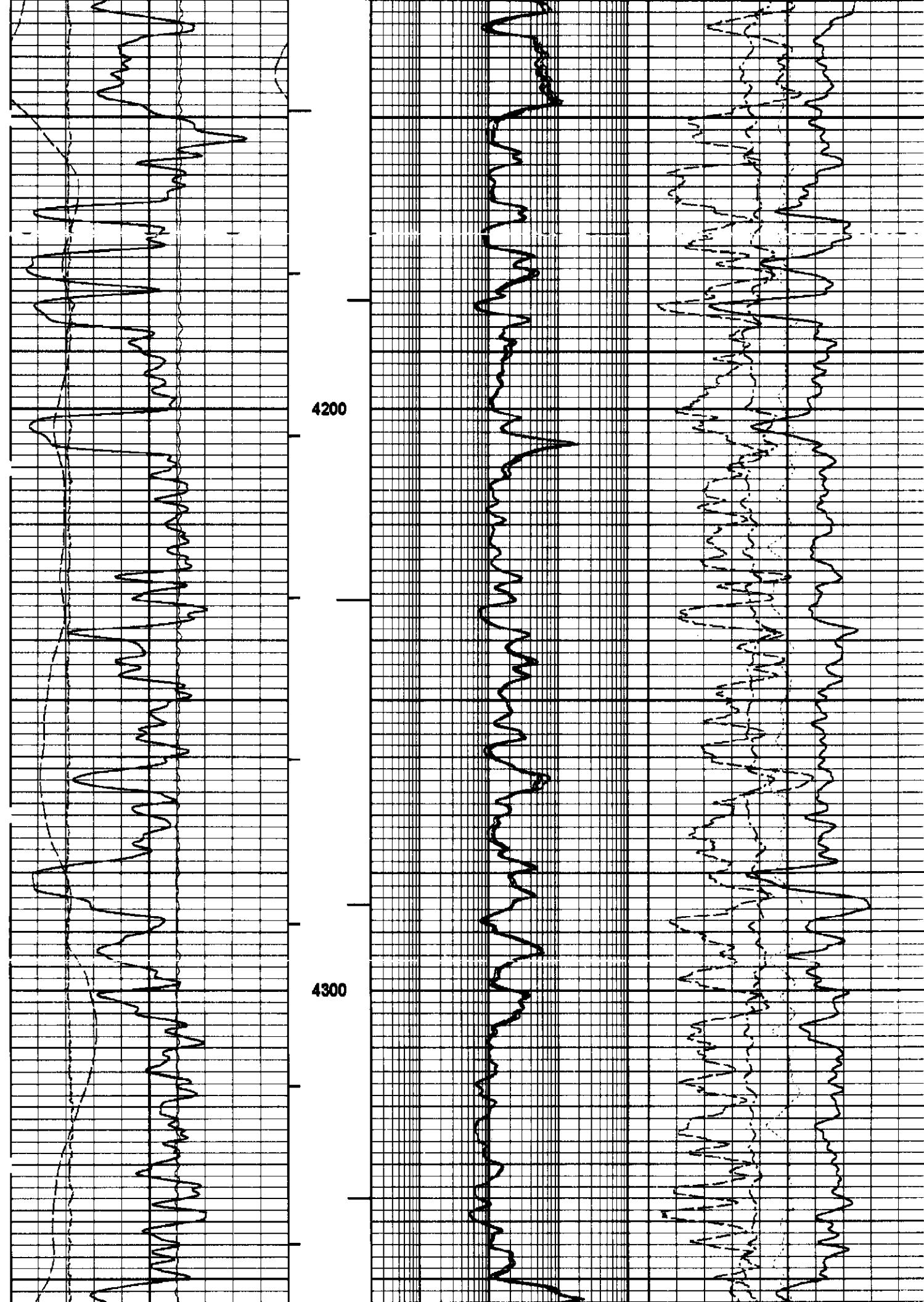
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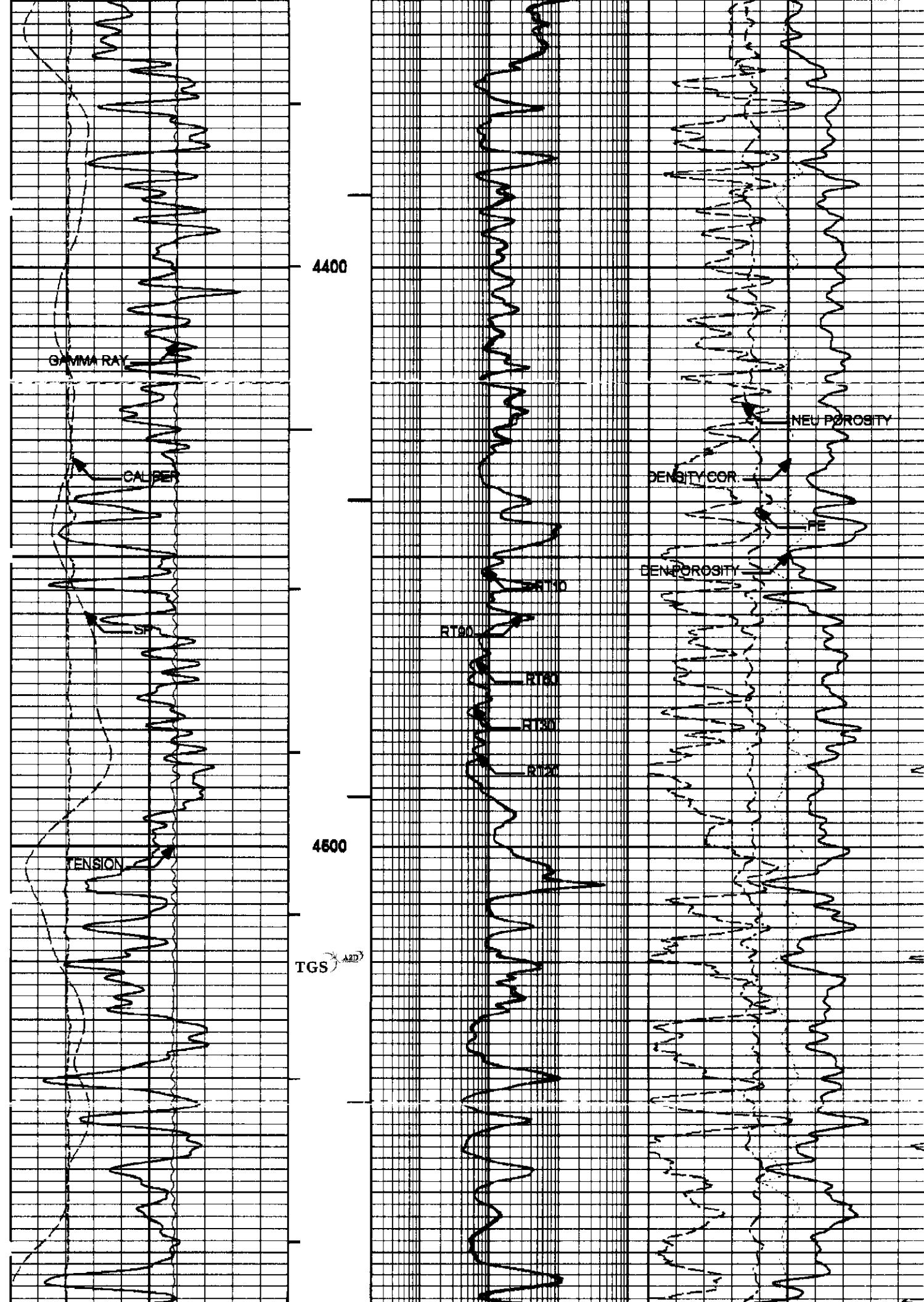
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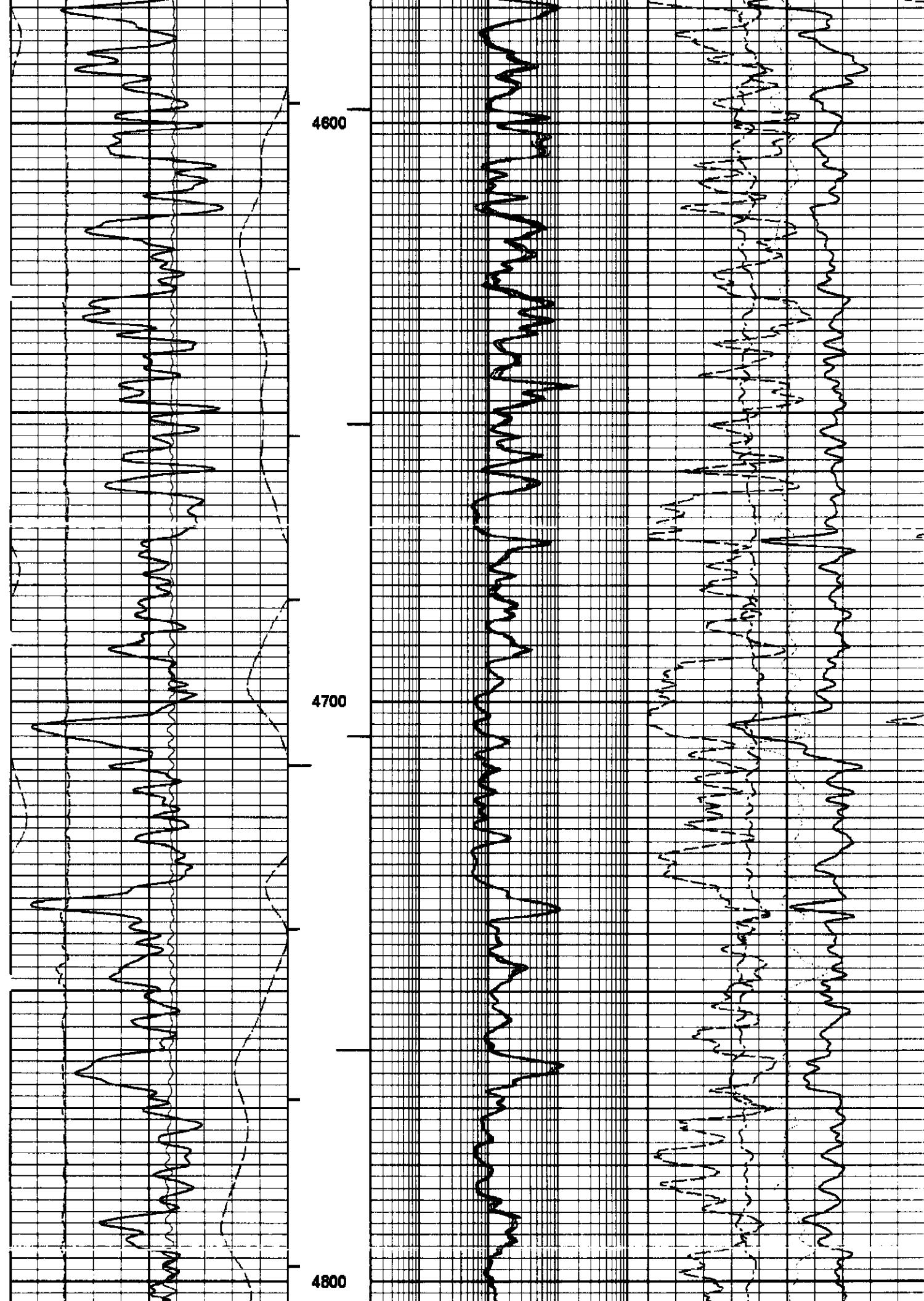
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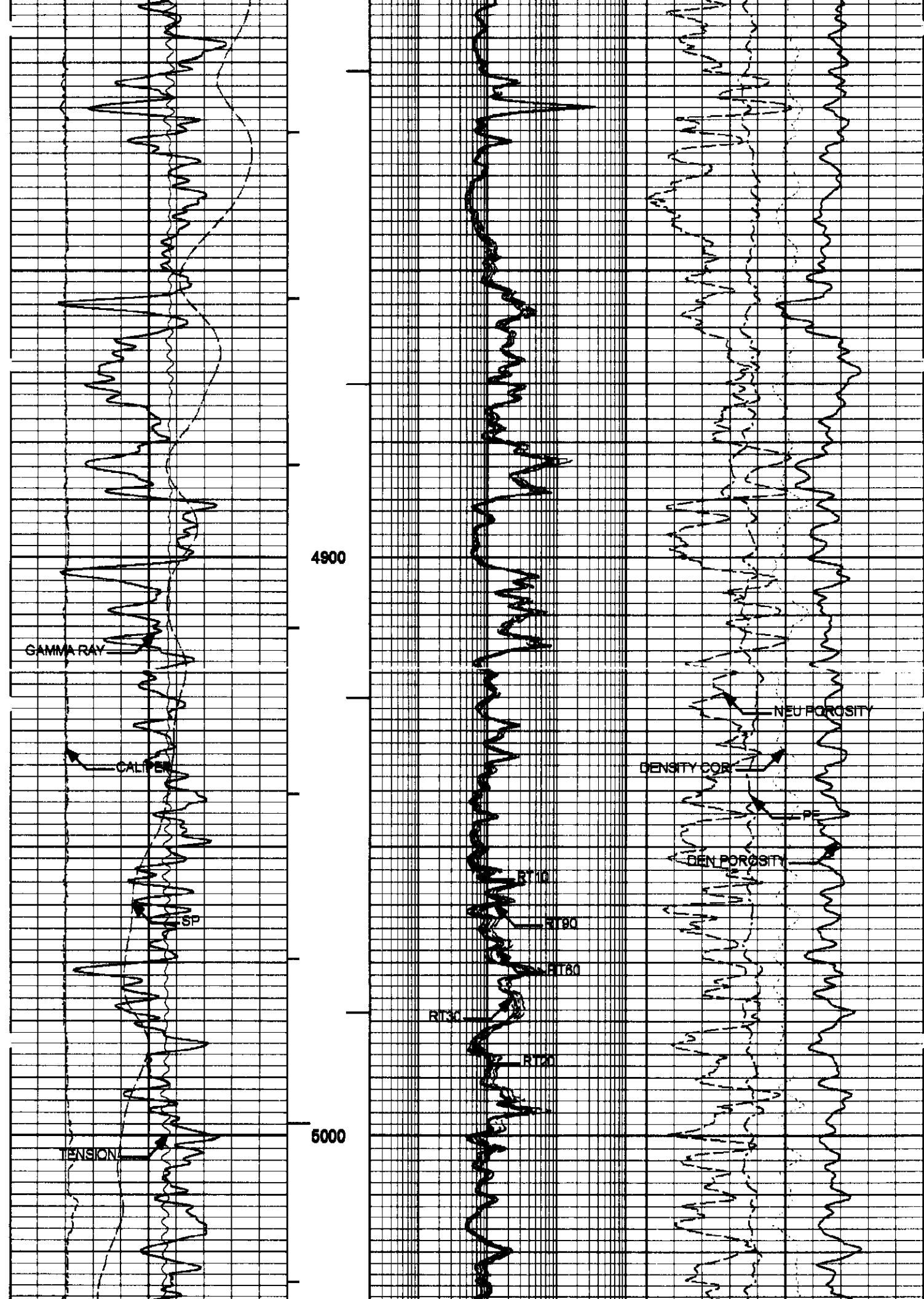






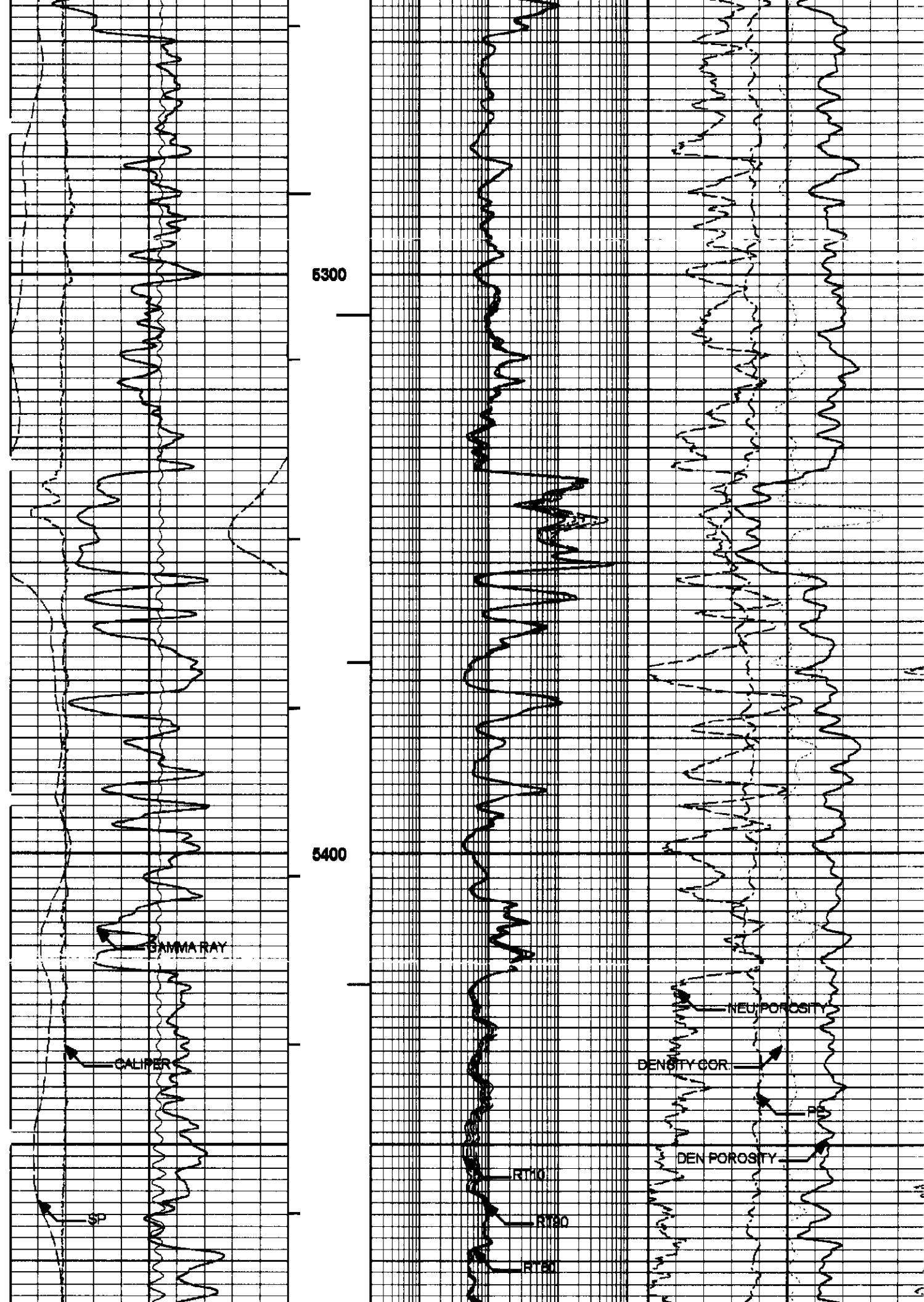


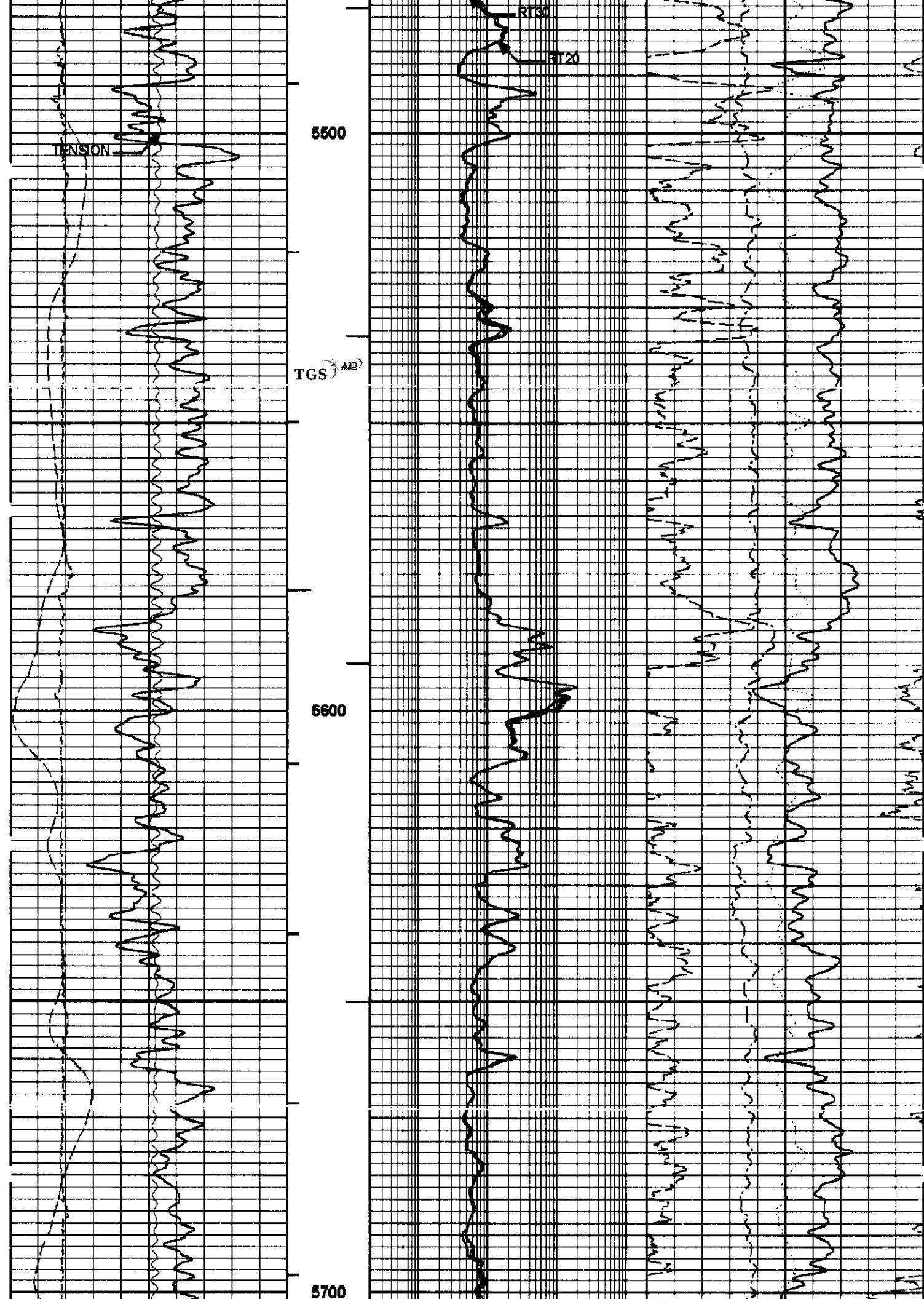


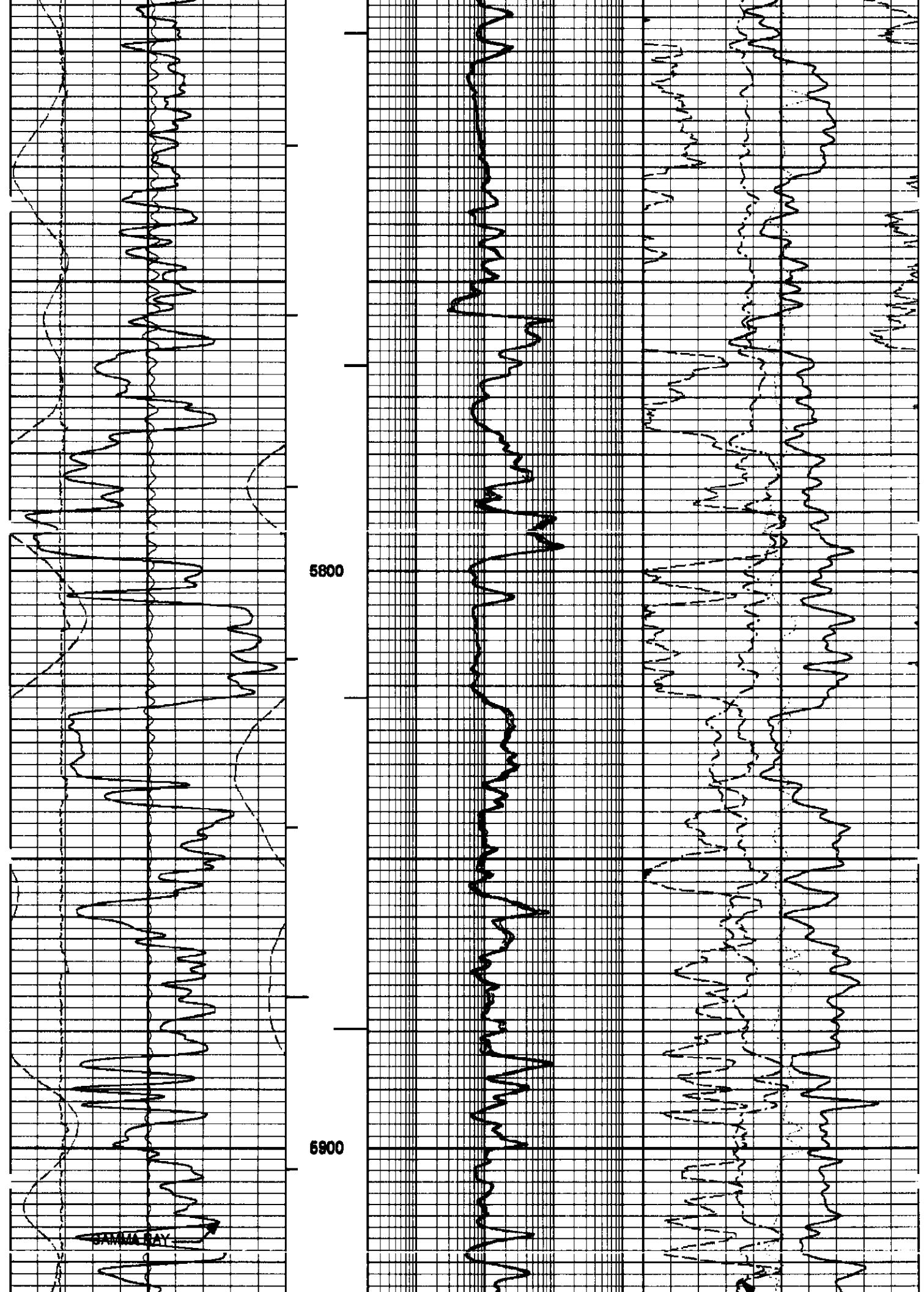


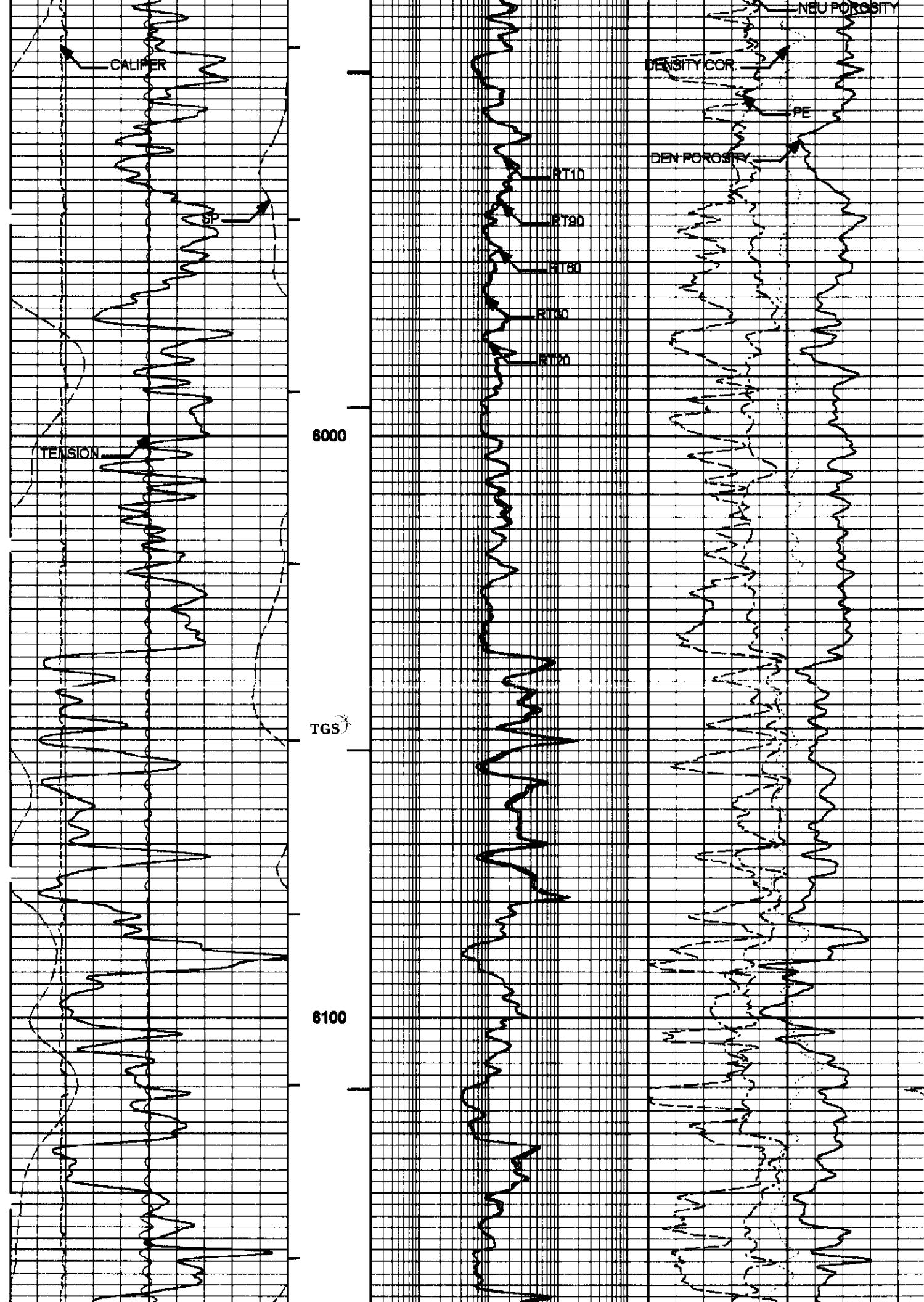
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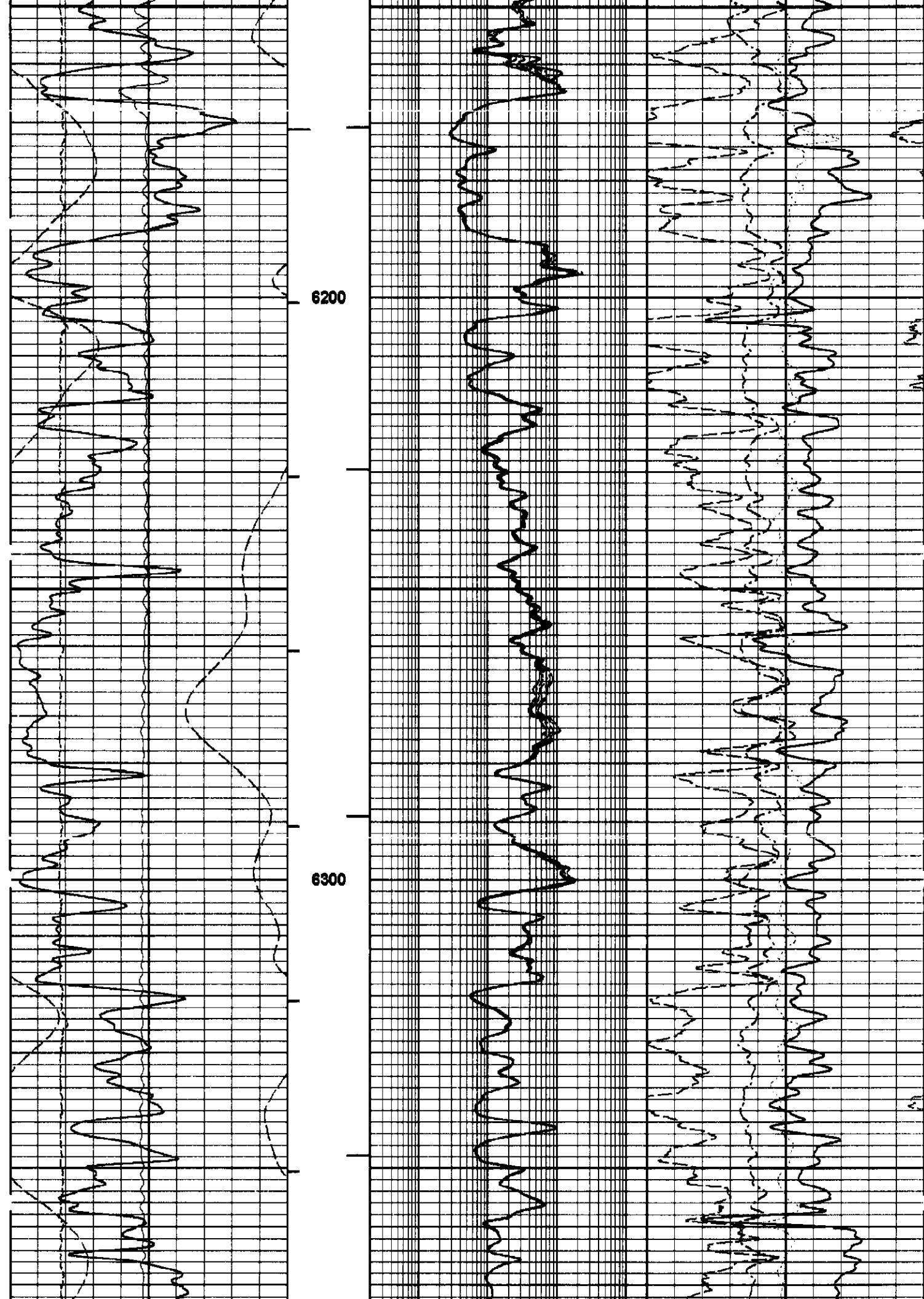
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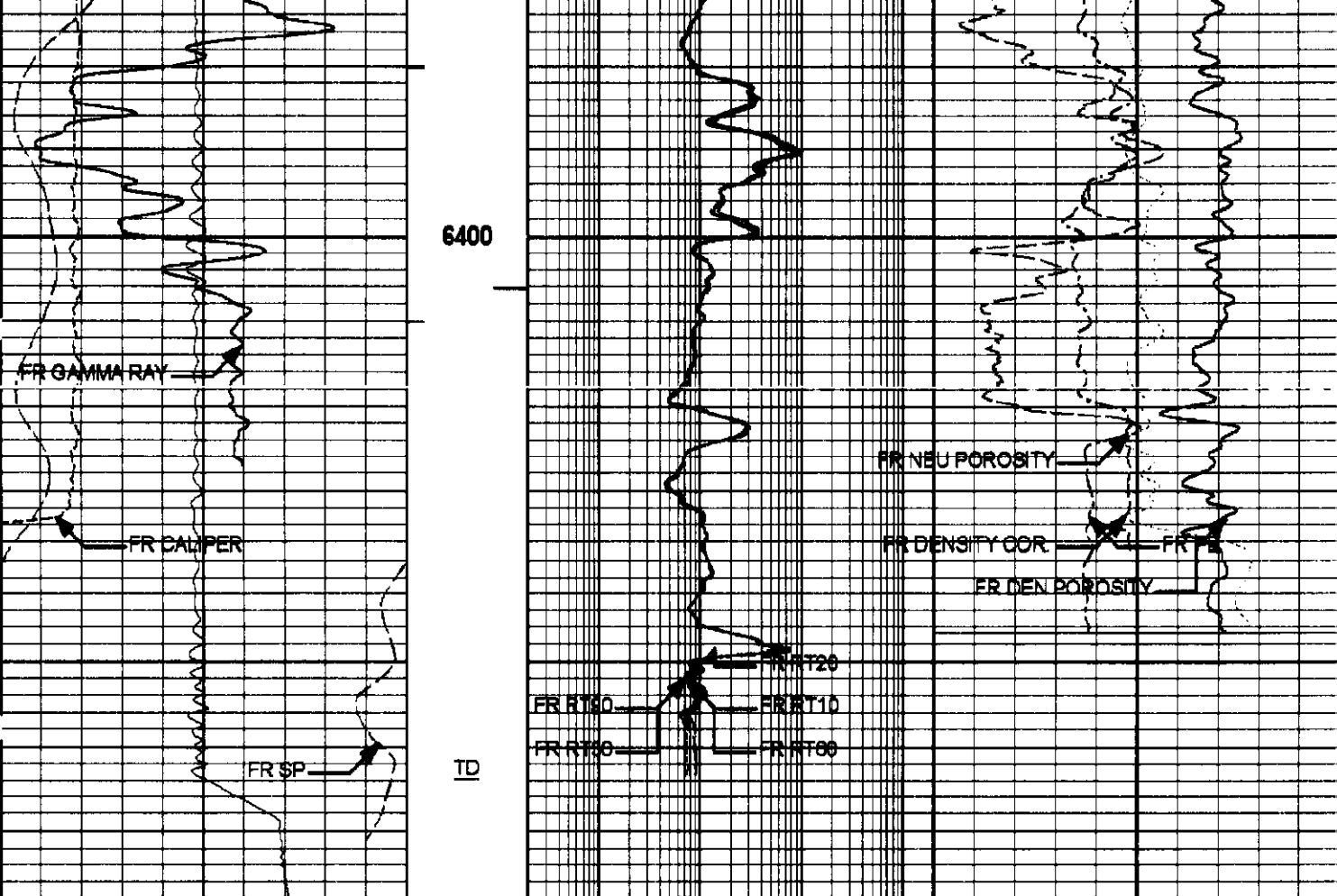












10000	TENSION	0	1 : 240	0.2	RT10	2K	-0.25	DENSITY COR.	0.25
	pounds		FT.		ohm-mm			g/cc	
0	SP	100	BHV	0.2	RT20	2K	0	PE	10
	millivolt				ohm-m				
6	CALIPER	16	AHV	0.2	RT30	2K	30	NEU POROSITY	-10
	inches				ohm-m			sand	
0	GAMMA RAY	200		0.2	RT60	2K	30	DEN POROSITY	-10
	api				ohm-mm			2.68	
				0.2	RT90	2K			
					ohm-mm				

HALLIBURTON

Plot Time: 05-Jul-10 14:34:10  
 Plot Range: 68 ft to 6478 ft  
 Data: UTE\_TRIBAL03\_05Well Based\MAIN  
 Plot File: \TRIPLEV\_QEP\_TRIPLE\_M

MAIN PASS 5" = 100'

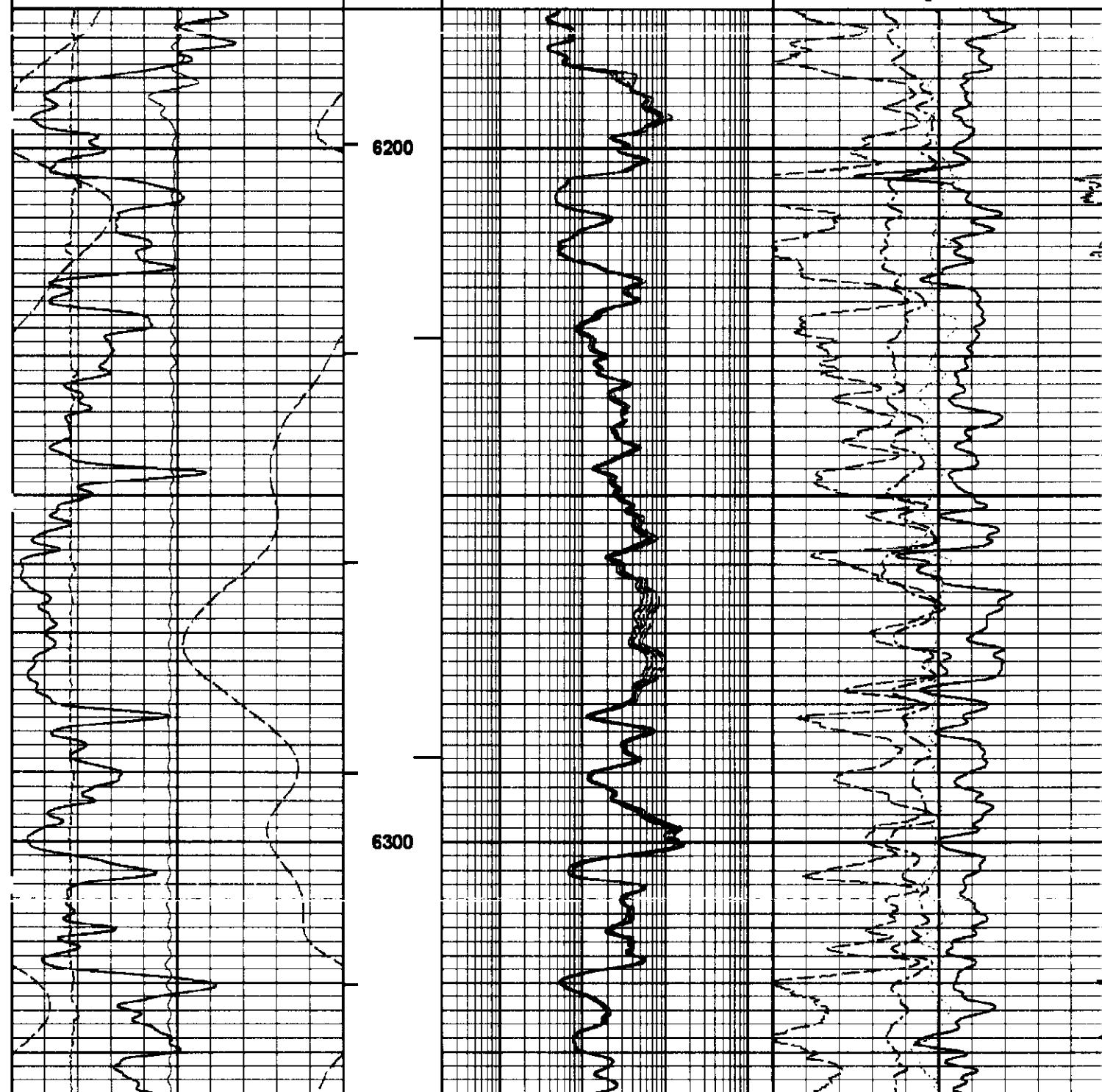
TGS A2D

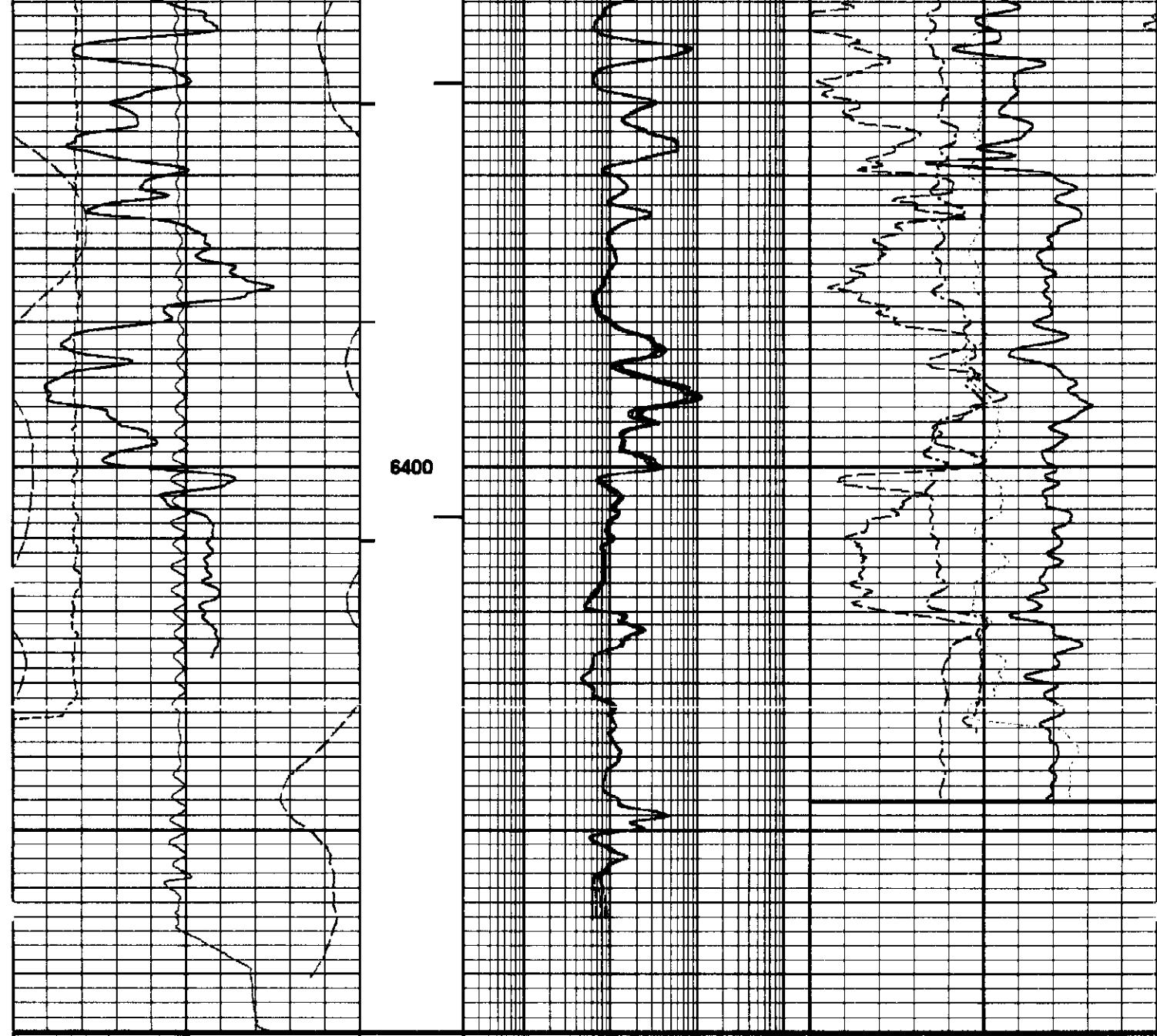
HALLIBURTON

Plot Time: 05-Jul-10 14:34:11  
 Plot Range: 5180 ft to 6477.92 ft  
 Data: UTE\_TRIBAL03\_05Well Based\REPEAT  
 Plot File: \TRIPLEV\_QEP\_TRIPLE\_R

REPEAT SECTION 5" = 100'

		0.2	RT90	2K		
			ohm-m			
0	GAMMA RAY	200	0.2	RT60	2K 30	DEN POROSITY
	api			ohm-m		-10
6	CALIPER	16	AHV	0.2	RT30	NEU POROSITY
	Inches				2K 30	-10
0	SP	100	BHV	0.2	RT20	PE
	millivolts				2K 0	10
10000	TENSION	0	1 : 240	0.2	RT10	DENSITY COR.
	pounds		FT.		2K -0.25	0.25
						g/cc





10000	TENSION	0	1 : 240	0.2	RT10	2K	-0.25	DENSITY COR.	0.25
	pounds		FT.		ohmm			g/cc	
0	SP	100	BHV	0.2	RT20	2K	0	PE	10
	millivolts				ohmm				
6	CALIPER	16	AHV	0.2	RT30	2K	30	NEU POROSITY	-10
	inches				ohmm			sand	
0	GAMMA RAY	200		0.2	RT80	2K	30	DEN POROSITY	-10
	epl				ohmm			2.68	
				0.2	RT90	2K			
					ohmm				

HALLIBURTON

Plot Time: 05-JUL-10 14:34:12  
 Plot Range: 6180 ft to 6477.92 ft  
 Data: UTE\_TRIBAL03\_05\Well Based\REPEAT1  
 Plot File: \TRIPLEV\_QEP\_TRIPLE\_R

REPEAT SECTION 5" = 100'

**HALLIBURTON****CALIBRATION REPORT****NATURAL GAMMA RAY TOOL SHOP CALIBRATION**

**Tool Name:** GTET - 11277435      **Reference Calibration Date:** 16-May-10 15:48:23  
**Engineer:** G. ALLEN      **Calibration Date:** 19-Jun-10 14:16:20  
**Software Version:** WL INSITE R2.6.1 (Build 9)      **Calibration Version:** 1

Calibrator Source S/N: TB-271

Calibrator API Reference: 236.00 api

Measurement	Measured	Calibrated	Units
Background	32.8	33.0	api
Background + Calibrator	267.5	269.0	api
Calibrator	236.2	236.0	api

**NATURAL GAMMA RAY TOOL FIELD CALIBRATION**

**Tool Name:** GTET - 11277435      **Reference Calibration Date:** 19-Jun-10 14:16:20  
**Engineer:** K. NORMAND      **Calibration Date:** 04-Jul-10 11:13:29  
**Software Version:** WL INSITE R2.6.1 (Build 9)      **Calibration Version:** 1

Calibrator Source S/N: TB-271

Calibrator API Reference: 236.00 api

Field Verification	Shop	Field	Units
Background	33.0	32.5	api
Background + Calibrator	269.0	271.5	api
Calibrator	236.0	239.0	api

Shop	Field	Difference	Tolerance
236.0	239.0	-3.0	+/- 9.00

**NATURAL GAMMA RAY TOOL POST CALIBRATION**

**Tool Name:** GTET - 11277435      **Reference Calibration Date:** 04-Jul-10 11:13:29  
**Engineer:** K. NORMAND      **Calibration Date:** 05-Jul-10 14:26:15  
**Software Version:** WL INSITE R2.6.1 (Build 9)      **Calibration Version:** 1

Calibrator Source S/N: TB-271

Calibrator API Reference: 236.00 api

Post Verification	Field	Post	Units
Background	32.5	34.2	api
Background + Calibrator	271.5	270.5	api
Calibrator	239.0	236.3	api

Shop	Field	Post	Difference	Tolerance
236.0	239.0	236.3	2.7	+/- 9.00

**ACCELEROMETER SHOP CALIBRATION**

**Tool Name:** GTET - 11277435      **Reference Calibration Date:** 16-May-10 10:30:05  
**Engineer:** G. ALLEN      **Calibration Date:** 19-Jun-10 14:23:02  
**Software Version:** WL INSITE R2.6.1 (Build 9)      **Calibration Version:** 1

Horizontal-1 Telemetry	Horizontal-2 Telemetry	Vertical Telemetry	Units
-343.82	-143.09	-16444.00	cnts

-349.52 -140.59 -18444.00 0.00

Coefficient	Coefficient Value	Tolerance
Gain	-0.000062	0.0100 - -0.0100
Offset	-0.015	-----
Noise	0.0007	0.0030

Orientation	Measured	Calibrated
Horizontal	-0.01	0.00
Vertical	1.00	1.00

### DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10917119 Reference Calibration Date: 19-Jun-10 20:05:23  
 Engineer: G. ALLEN Calibration Date: 19-Jun-10 20:22:21  
 Software Version: WL INSITE R2.6.1 (Build 9) Calibration Version: 1

Logging Source S/N: 21480B

Tank Serial Number: 105045

Reference value assigned to Tank: 52.630

Snow Block S/N: BOND\_SB

Calibration Tank Water Temperature: 60 degF

Min. Tool Housing Outside Diameter: 3.625 in

### CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.966	0.965	0.900 - 1.100

### WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2165	0.2162	0.0002	+/- 0.0020
Calibrated Ratio:	0.91	0.91	0.008	+/- 0.050

### VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0556	0.02000 - 0.09000

### PASS/FAIL SUMMARY

Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

### DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name: DSNT - 10917119 Reference Calibration Date: 19-Jun-10 20:22:21  
 Engineer: K. NORMAND Calibration Date: 04-Jul-10 11:20:26  
 Software Version: WL INSITE R2.6.1 (Build 9) Calibration Version: 1

Logging Source S/N: 21480B

Snow Block S/N: BOND\_SB

### NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0556	0.0646	0.0090	+/- 0.0150

### PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

## DUAL SPACED NEUTRON POST CALIBRATION

Tool Name: DSNT - 10917119

Reference Calibration Date: 04-Jul-10 11:20:26

Engineer: K. NORMAND

Calibration Date: 05-Jul-10 14:27:54

Software Version: WL IN SITE R2.6.1 (Build 9)

Calibration Version: 1

Logging Source S/N: 21480B

Snow Block S/N: BOND\_SB

### NEUTRON POST-CHECK SUMMARY

	Field Value	Post Value	Difference	Control Limit On Change
Snow-Block Porosity (decpl):	0.0646	0.0634	-0.0012	+/- 0.0150

### PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

## SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT - 10923744

Reference Calibration Date: 16-May-10 11:46:31

Engineer: G. ALLEN

Calibration Date: 19-Jun-10 21:00:06

Software Version: WL IN SITE R2.6.1 (Build 9)

Calibration Version: 1

Logging Source S/N: 5248GW

Aluminum Block S/N: 8261

Density: 2.602g/cc

Pe: 3.182

Magnesium Block S/N: 8260

Density: 1.688g/cc

Pe: 2.594

### DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0370	1.0318	0.90 - 1.10
Near Dens Gain	1.0160	1.0093	0.90 - 1.10
Near Peak Gain	1.0199	1.0088	0.90 - 1.10
Near Lith Gain	1.0015	0.9974	0.90 - 1.10
Far Bar Gain	1.0114	1.0128	0.90 - 1.10
Far Dens Gain	1.0028	1.0029	0.90 - 1.10
Far Peak Gain	1.0007	0.9987	0.90 - 1.10
Far Lith Gain	0.9835	0.9852	0.90 - 1.10
Near Bar Offset	-0.3977	-0.3389	NONE
Near Dens Offset	-0.2237	-0.1532	NONE
Near Peak Offset	-0.2651	-0.1815	NONE
Near Lith Offset	-0.0976	-0.0518	NONE
Far Bar Offset	-0.1673	-0.1777	NONE
Far Dens Offset	-0.0877	-0.0839	NONE
Far Peak Offset	-0.0898	-0.0675	NONE
Far Lith Offset	0.0282	0.0213	NONE
Near Bar Background	1130.43	1128.11	700 - 1450
Near Dens Background	371.36	369.71	230 - 480
Near Peak Background	161.54	162.10	100 - 210
Near Lith Background	200.36	199.54	125 - 280
Far Bar Background	608.37	612.03	450 - 900
Far Dens Background	237.93	241.01	175 - 345
Far Peak Background	84.15	84.89	70 - 140

Far Lith Background 98.56 97.54 75 - 145

### CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
<b>MAGNESIUM</b>				
Density (g/cc)	1.683	1.688	0.005	+/- 0.015
Pe	2.610	2.594	-0.016	+/- 0.150
<b>ALUMINUM</b>				
Density (g/cc)	2.593	2.602	0.009	+/- 0.01500
Pe	3.194	3.182	-0.012	+/- 0.150

### TOOL SUMMARY

Measurement	Neutron Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
<b>QUALITY</b>				
Background	-0.0018	+/- 0.0110	-0.0030	+/- 0.0140
Magnesium Block	-0.0004	+/- 0.0110	-0.0008	+/- 0.0140
Aluminum Block	-0.0001	+/- 0.0110	0.0020	+/- 0.0140
Resolution	9.87	8.00 - 11.50	9.39	8.00 - 11.50
Internal Verifier(B+D+P+L)	1859	1200 - 2700	1048	800 - 1700

### PASS/FAIL SUMMARY

Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

### SPECTRAL DENSITY FIELD CHECK

Tool Name: SDLT - 10923744

Reference Calibration Date: 19-Jun-10 21:00:08

Engineer: K. NORMAND

Calibration Date: 04-Jul-10 11:13:53

Software Version: WL IN SITE R2.6.1 (Build 9)

Calibration Version: 1

Pad Temperature: 64.7 degF

### DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1859.488	1858.584	-2.904	17.262
Far (B+D+P+L) cps	1045.565	1039.552	-6.013	17.194
Near Resolution	9.87	9.87	0.000	0.50
Far Resolution	9.39	9.42	0.030	1.00

### PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

### SPECTRAL DENSITY POST CHECK

Tool Name: SDLT - 10923744

Reference Calibration Date: 04-Jul-10 11:13:53

Engineer: K. NORMAND

Calibration Date: 04-Jul-10 11:13:53

Engineer: K. NORMAND

Calibration Date: 09-Jun-10 14:26:09

Software Version: WL INSITE R2.6.1 (Build 9)

Calibration Version: 1

Pad Temperature: 78.0 degF

**DENSITY POST CALIBRATION SUMMARY**

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1856.564	1865.387	8.823	17.282
Far (B+D+P+L) cps	1039.552	1048.801	7.349	17.194
Near Resolution	9.67	9.82	0.150	0.50
Far Resolution	9.42	9.47	0.050	1.00

**PASS/FAIL SUMMARY**

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

**DENSITY CALIPER SHOP CALIBRATION**

Tool Name: SDLT - 10923744

Reference Calibration Date: 19-Jun-10 21:30:46

Engineer: G. ALLEN

Calibration Date: 19-Jun-10 21:35:55

Software Version: WL INSITE R2.6.1 (Build 9)

Calibration Version: 1

**CALIBRATION COEFFICIENTS**

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2335.64	-2132.28	-7000.00 - -1000.00
Pad Gain	0.0003786	0.0003713	0.000200 - 0.000600
Arm Offset	-1649.11	-1838.94	-5000.00 - 3000.00
Arm Gain	0.0005641	0.0005621	0.000300 - 0.000700
Arm Power	-0.000005176	-0.000005198	-0.000010 - 0.000010

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

**CALIBRATION RINGS**

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
<b>PAD EXTENSION:</b>				
Small Ring (in)	1.96	2.00	0.04	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20
<b>RING DIAMETER:</b>				
Small Ring (in)	8.53	8.50	-0.03	+/- 0.20
Medium Ring (in)	8.28	8.25	-0.03	+/- 0.20
Large Ring (in)	15.05	15.00	-0.05	+/- 0.20

A2D

**PASS/FAIL SUMMARY**

Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

**PASS/FAIL SUMMARY**

Calibration-Coefficients Range Check:	Passed
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**SDLT CALIPER FIELD CALIBRATION**

Tool Name: SDLT - 10923744

Reference Calibration Date: 19-Jun-10 21:36:55

Engineer: K. NORMAND

Calibration Date: 04-Jul-10 11:16:01

Software Version: WL INSITE R2.6.1 (Build 9)

Calibration Version: 1

**MEASURED CALIPER VALUES**

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.70	-0.05	+/- 0.10

Pad Extension	3.75	3.75	-0.05	+/- 0.15
Ring Diameter	8.25	8.18	-0.07	+/- 0.15

### PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

### ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	ACRT - I2075842	Reference Calibration Date:	26-May-10 15:34:36
Engineer:	K. NORMAND	Calibration Date:	26-May-10 15:43:09
Software Version:	WL INSITE R2.6.1 (Build 9)	Calibration Version:	1

### TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80')	0.95	1.0098	1.05	0.95	1.0148	1.05	0.95	1.0205	1.05
A2 (50')	0.95	1.0157	1.05	0.95	1.0215	1.05	0.95	1.0297	1.05
A3 (29')	0.95	1.0111	1.05	0.95	1.0166	1.05	0.95	1.0216	1.05
A4 (17')	0.95	1.0066	1.05	0.95	1.0100	1.05	0.95	1.0178	1.05
A5 (10')	N/A	N/A	N/A	0.95	1.0091	1.05	0.95	1.0161	1.05
A6 (8')	N/A	N/A	N/A	0.95	0.9974	1.05	0.95	1.0046	1.05

### TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80')	-5	0.023	2	-6	-3.680	-2	-8	-5.887	-2
A2 (50')	-7	-1.872	-2	-6	-3.584	-2	-7	-5.328	-2
A3 (29')	-27	-13.482	-9	-9	-4.385	-3	-7	-5.187	-1
A4 (17')	-180	-104.284	-60	-45	-35.626	-15	-39	-29.580	-13
A5 (10')	N/A	N/A	N/A	-150	-93.107	-50	-80	-62.588	-10
A6 (8')	N/A	N/A	N/A	175	215.837	525	80	66.318	270

### TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper	Signal	Lower	Measured	Upper
	(ohm-m)		(ohm-m)		(ohm-m)	(ohm-m)	(ohm-m)
12K	0.6	0.8767	1.3	Mud Cell	0.95	0.999	1.05
36K	1.0	1.2025	2.0				
72K	1.0	1.5634	2.0				

### CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
<b>GTET-I1277435</b>						
Gamma Ray Calibrator	236.0	239.0	236.3	2.7	+/- 9.00	api
<b>DSHT-10917119</b>						
Snow-Block Porosity	0.0556	0.0646	0.0634	0.0012	+/- 0.0150	decp
<b>BDLT-10623744</b>						
Near(B+D+P+L)	1859.468	1856.564	1865.387	-8.823	+/- 17.262	cps
Far(B+D+P+L)	1045.565	1039.552	1046.901	-7.349	+/- 17.194	cps
Pad Extension	3.75	3.70	-----	0.05	+/- 0.10	in
Ring Diameter	8.25	8.18	-----	0.070	+/- 0.15	in
<b>ACR-I2075842</b>						
Mud Cell	0.999	-----	-----	0.000	-----	ohm-m

## CUSTOMER EVENT LOG

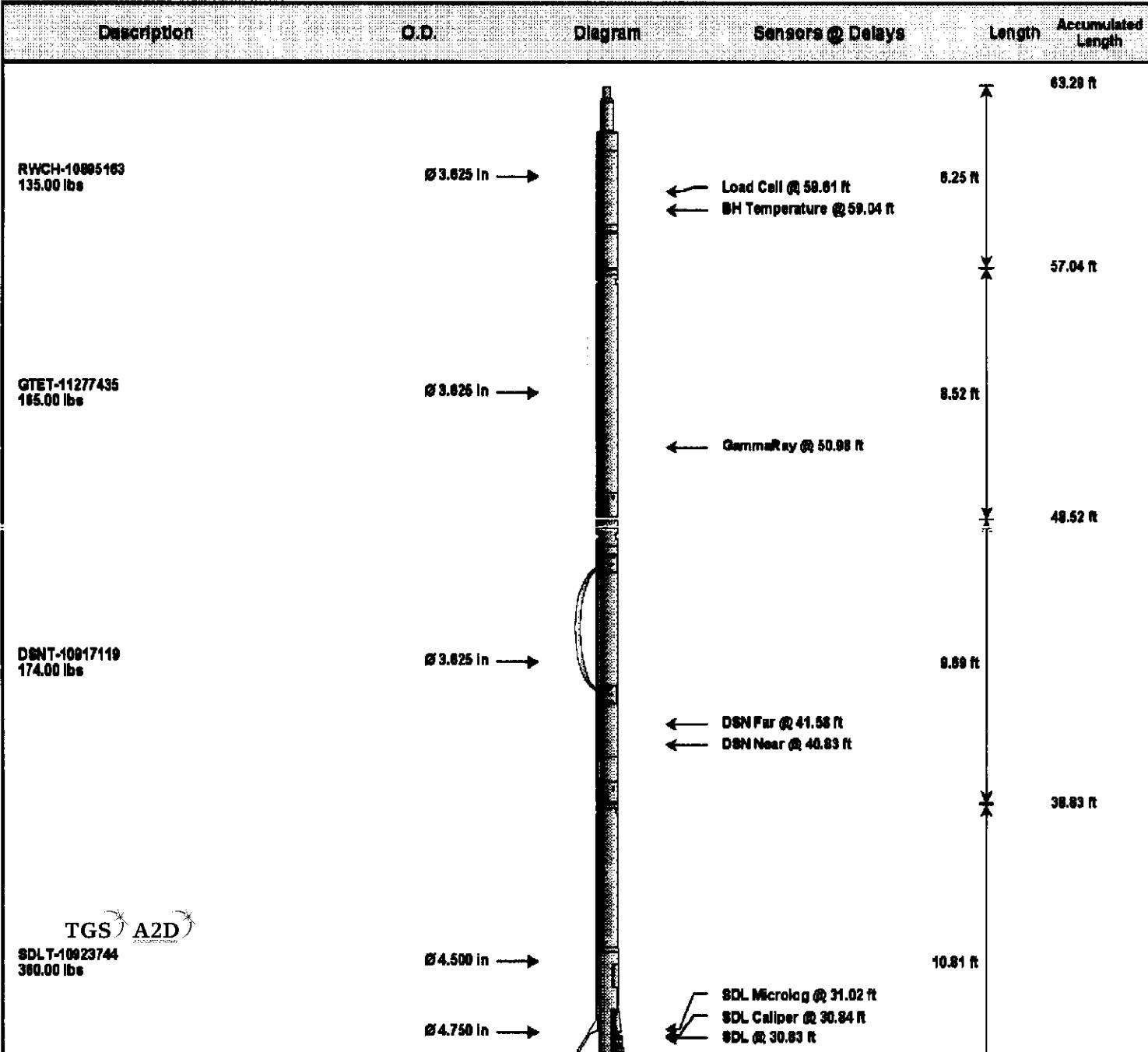
Event Type	Time & Date	Depth (ft)	Event Description
	05-Jul-10 11:04:19	763.50	Logging 001 05-Jul-10 11:04 Up @785.5f
	05-Jul-10 11:10:05	460.29	Halting 001 05-Jul-10 11:04 Up @785.5f
	05-Jul-10 11:10:32	369.75	Logging 002 05-Jul-10 11:10 Dn @369.8f
	05-Jul-10 11:38:10	6423.71	Halting 002 05-Jul-10 11:10 Dn @369.8f
	05-Jul-10 11:39:08	6479.00	Logging 003 05-Jul-10 11:39 Up @6479.0f
	05-Jul-10 11:45:36	6172.70	Halting 003 05-Jul-10 11:39 Up @6479.0f
	05-Jul-10 11:50:40	6479.50	Logging 004 05-Jul-10 11:50 Up @6479.5f
	05-Jul-10 13:45:25	58.82	Halting 004 05-Jul-10 11:50 Up @6479.5f

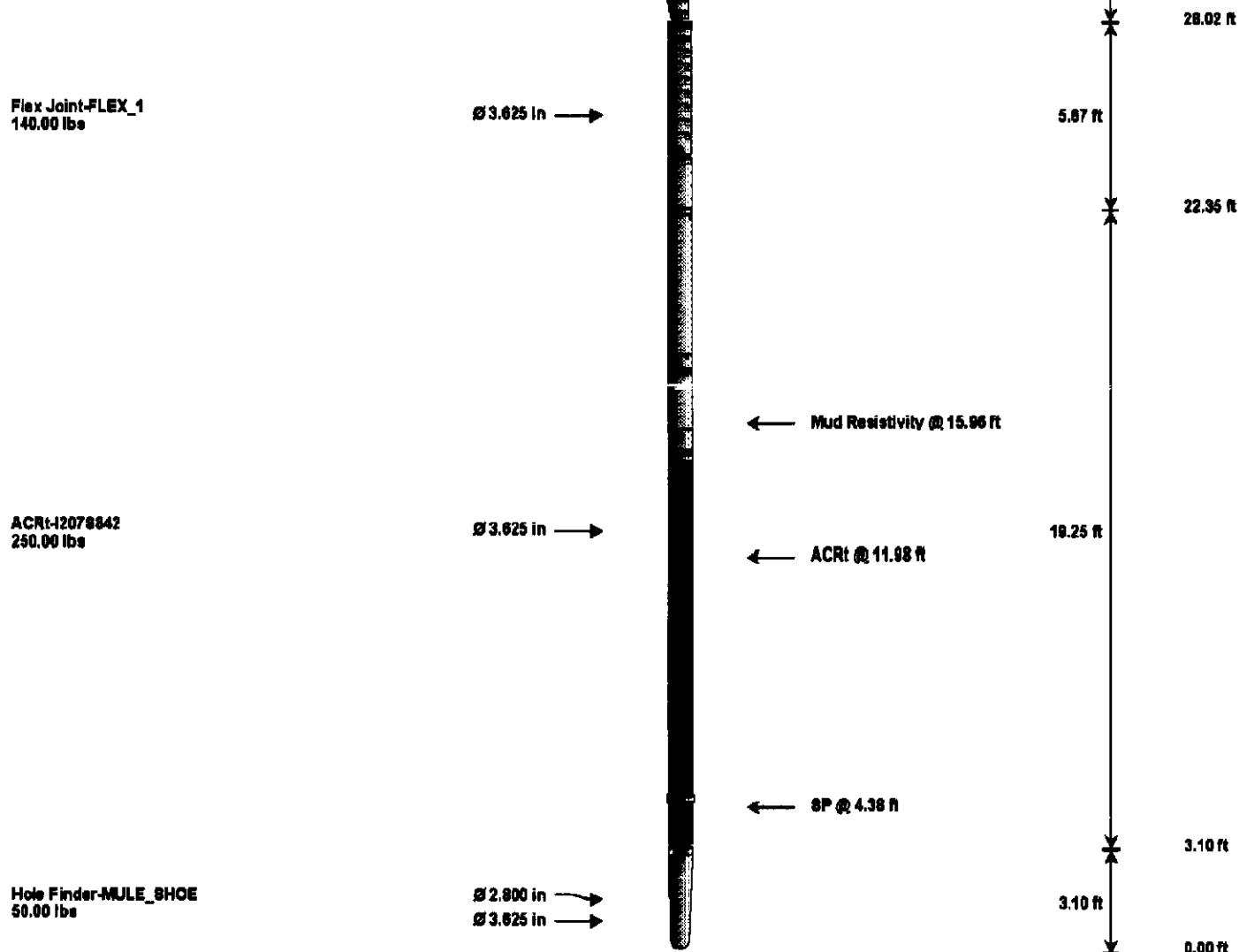
Data: UTE\_TRIBAL03\_05\0001\Q\_TRIPLE\HW11255

Date: 05-Jul-10 13:51:51

## HALLIBURTON

## TOOL STRING DIAGRAM REPORT





Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max Log Speed (fpm)
RWCH	Releasable Wireline Cable Head	10895163	135.00	6.25	57.04	300.00
GTET	Gamma Telemetry Tool	11277435	165.00	8.52	48.52	60.00
DSNT	Dual Spaced Neutron	10917119	174.00	9.89	38.83	60.00
DCNT	DSN Decentralizer	10813523	6.60	5.13	42.16	300.00
SDLT	Spectral Density Tool	10823744	360.00	10.81	28.02	60.00
FLEX	Flex Joint	FLEX_1	140.00	5.67	22.35	300.00
ACRT	Array Compensated True Resistivity	I207S842	250.00	19.25	3.10	300.00
SP	SP Ring	1	0.00	0.25	4.38	300.00
HFND	Hole Finder	MULE_SHOE	50.00	3.10	0.00	300.00
<b>Total</b>			<b>1,280.60</b>	<b>63.29</b>		

\* Not included in Total Length and Length Accumulation.

Date: 05-Jul-10 08:35:03

COMPANY PETROGLYPH OPERATING COMPANY

WELL UTE TRIBAL 03-05

FIELD ANTELOPE CREEK

COUNTY DUCHESNE

STATE

UTAH

SPECTRAL DENSITY  
DUAL SPACED NEUTRON  
ARRAY COMPENSATED

HALLIBURTON

TRUE RESISTIVITY



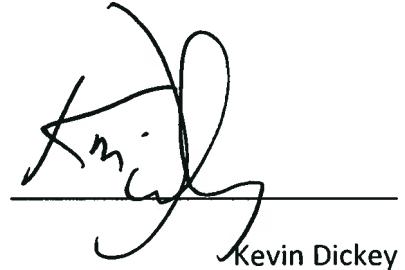
**ATTACHMENT NO. 9**

**LIST OF OWNERS AND AFFIDAVIT NOTIFICATION**

## AFFIDAVIT OF MAILING

I, Kevin Dickey, Vice President, Operations, Petroglyph Energy, being first duly sworn, depose and state as follows: On July 24<sup>th</sup>, 2015, I caused to be mailed by certified mail, postage prepaid, return receipt requested, a copy of the Application to convert 1 well that appears on the attached sheet to water injection for enhanced recovery. It was sent to all parties who have an interest within ¼ mile radius from this well. The attached list contains the names of all parties who were notified.

Dated on this 24<sup>th</sup> day of July, 2015



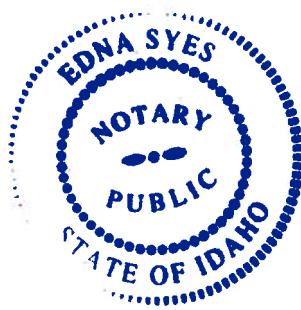
\_\_\_\_\_  
Kevin Dickey

Vice President, Operations

Petroglyph Energy

The forgoing affidavit was subscribed and sworn to before me by Kevin Dickey.

This 24 day of July, 2015.



Edna Syes  
Notary Public

July 24<sup>th</sup>, 2015**Mineral, Surface, and Working Interest Owners**

To Whom It May Concern,

On July 24th, 2015 Petroglyph Energy Inc. submitted to the Environmental Protection Agency an application requesting approval to convert 19 wells to water injection wells in an enhanced recovery program. The well(s) which were submitted are all located in Antelope Creek Field which is operated under a Cooperative Plan of Development between the Ute Tribe and Petroglyph Energy.

Owners at Well's Location

Mineral: Ute Tribe

Operator: Petroglyph

Surface: Ute Tribe

Working Interest: Petroglyph 100%

Owners within Well's ¼ mile radius

No others

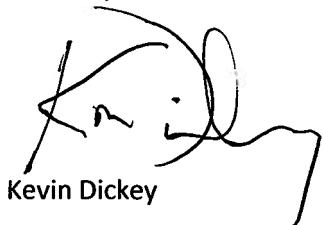
No others

No others

Anyone who would be directly and adversely affected by the authorization of the underground disposal into the Upper Green River formation may file a written request for a public hearing before the EPA. Logs and additional information on the subject wells are on file with the EPA, Groundwater Program, Mail Code 8P-W-UIC, 1595 Wynkoop St, Denver, Colorado 80202-1129.

Please contact Kevin Dickey at 208-685-7600 if you have any questions.

Sincerely,

  
Kevin Dickey

Vice President, Operations, Petroglyph Energy

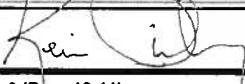
Enclosure

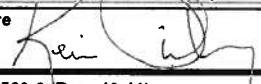
**PETROGLYPH OPERATING COMPANY, INC.**

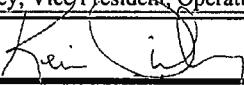
**ANTELOPE CREEK FIELD**

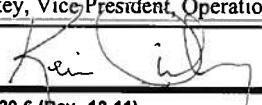
**WELLS TO BE CONVERTED TO INJECTION**

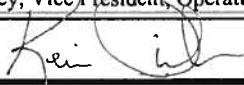
<b>Well Name and Number</b>	<b>Footages</b>	<b>Section, Township, and Range</b>
Ute Tribal 03-05	SHL: 2871' FNL & 752' FWL BHL: 2340' FNL & 684' FWL	3, T5S-R3W
Ute Tribal 03-12	2272' FSL & 575' FWL	3, T5S-R3W
Ute Tribal 08-11	2187' FSL 2011' FWL	8, T5S-R3W
Ute Tribal 08-12	2100' FSL & 515' FWL	8, T5S-R3W
Ute Tribal 09-01	770' FNL & 1059' FEL	9, T5S-R3W
Ute Tribal 09-04	585' FNL & 722' FWL	9, T5S-R3W
Ute Tribal 10-03	600' FNL & 1650' FWL	10, T5S-R3W
Ute Tribal 17-04	697' FNL & 636' FWL	17, T5S-R3W
Ute Tribal 17-05	1797' FNL & 620' FWL	17, T5S-R3W
Ute Tribal 17-12	2527' FSL & 612' FWL	17, T5S-R3W
Ute Tribal 20-06	2050' FNL & 1950' FWL	20, T5S-R3W
Ute Tribal 20-07	1980' FNL & 1980' FEL	20, T5S-R3W
Ute Tribal 20-11	1959' FSL & 2033' FWL	20, T5S-R3W
Ute Tribal 20-15	574' FSL & 1806' FEL	20, T5S-R3W
Ute Tribal 31-03	422' FNL & 2338' FWL	31, T5S-R3W
Ute Tribal 31-05	1980' FNL & 660' FWL	31, T5S-R3W
Ute Tribal 31-07	1976' FNL & 2168' FEL	31, T5S-R3W
Ute Tribal 31-12	1999' FSL & 748' FWL	31, T5S-R3W
Ute Tribal 36-08-E4	1796' FNL & 713' FEL	36, T5S-R4W

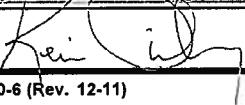
<b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>													
<b>I. EPA ID Number</b> <input type="text"/> U <input type="text"/> T/A <input type="text"/> C													
<b>Read Attached Instructions Before Starting For Official Use Only</b>													
Application approved mo day year			Date received mo day year			Permit Number		Well ID		FINDS Number			
<input type="text"/>			<input type="text"/>			<input type="text"/>		<input type="text"/>		<input type="text"/>			
<b>II. Owner Name and Address</b>						<b>III. Operator Name and Address</b>							
<b>Owner Name</b> <input type="text"/> Petroglyph Energy, Inc.						<b>Owner Name</b> <input type="text"/> Petroglyph Energy, Inc.							
Street Address <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number <input type="text"/> (208) 685-7600		Street Address <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number <input type="text"/> (208) 685-7600			
City <input type="text"/> Boise			State <input type="text"/> ID		ZIP CODE <input type="text"/> 83707		City <input type="text"/> Boise			State <input type="text"/> ID			
<b>IV. Commercial Facility</b>			<b>V. Ownership</b>			<b>VI. Legal Contact</b>			<b>VII. SIC Codes</b>				
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator			<input type="text"/>				
<b>VIII. Well Status (Mark "x")</b>													
<input checked="" type="checkbox"/> A Operating		Date Started mo day year <input type="text"/>			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed					
<b>IX. Type of Permit Requested (Mark "x" and specify if required)</b>													
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area			Number of Existing Wells <input type="text"/> 111			Number of Proposed Wells <input type="text"/> 1			Name(s) of field(s) or project(s) <input type="text"/> Antelope Creek <input type="text"/> Ute Tribal 03-05				
<b>X. Class and Type of Well (see reverse)</b>													
A. Class(es) (enter code(s)) <input type="text"/> II		B. Type(s) (enter code(s)) <input type="text"/> R		C. If class is "other" or type is code 'x,' explain <input type="text"/>					D. Number of wells per type (if area permit) <input type="text"/> 1 well, type R				
<b>XI. Location of Well(s) or Approximate Center of Field or Project</b>													
Latitude			Longitude			Township and Range						<b>XII. Indian Lands (Mark 'x')</b>	
Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/> 3	Twp <input type="text"/> 5S	Range <input type="text"/> 3W	1/4 Sec <input type="text"/> NW	Feet From <input type="text"/>	Line <input type="text"/>	Feet From <input type="text"/>	Line <input type="text"/>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>XIII. Attachments</b>													
(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)													
For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.													
<b>XIV. Certification</b>													
I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)													
<b>A. Name and Title (Type or Print)</b> <input type="text"/> Kevin Dickey Vice President, Operations													
<b>B. Phone No. (Area Code and No.)</b> <input type="text"/> (208) 685-7600													
<b>C. Signature</b> 													
<b>D. Date Signed</b> <input type="text"/> 07/27/2015													

<b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												<b>I. EPA ID Number</b>  <input type="text"/> U <input type="text"/> T/A <input type="text"/> C					
<b>Read Attached Instructions Before Starting For Official Use Only</b>																	
Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number					
<input type="text"/>			<input type="text"/>			<input type="text"/>			<input type="text"/>			<input type="text"/>					
<b>II. Owner Name and Address</b>												<b>III. Operator Name and Address</b>					
Owner Name <input type="text"/> Petroglyph Energy, Inc.												Owner Name <input type="text"/> Petroglyph Energy, Inc.					
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City <input type="text"/> Boise			State <input type="text"/> ID			ZIP CODE <input type="text"/> 83707			City <input type="text"/> Boise			State <input type="text"/> ID			ZIP CODE <input type="text"/> 83707		
<b>IV. Commercial Facility</b>			<b>V. Ownership</b>			<b>VI. Legal Contact</b>			<b>VII. SIC Codes</b>								
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator											
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<b>X. Class and Type of Well (see reverse)</b>																	
A. Class(es) (enter code(s)) <input type="text"/> II		B. Type(s) (enter code(s)) <input type="text"/> R		C. If class is "other" or type is code 'x,' explain <input type="text"/>									D. Number of wells per type (if area permit) <input type="text"/> 1 well, type R				
<b>XI. Location of Well(s) or Approximate Center of Field or Project</b>																	
Latitude			Longitude			Township and Range									<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Sec <input type="text"/> 3	Twp <input type="text"/> SS	Range <input type="text"/> 3W	1/4 Sec <input type="text"/> SW	Feet From <input type="text"/>	Line <input type="text"/>	Feet From <input type="text"/>	Line <input type="text"/>				
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A. Name and Title (Type or Print) <input type="text"/> Kevin Dickey, Vice President, Operations												B. Phone No. (Area Code and No.) <input type="text"/> (208) 685-7600					
C. Signature 												D. Date Signed <input type="text"/> 07/27/2015					

<b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>											
<b>I. EPA ID Number</b> <input type="text"/> U <input type="text"/> T/A <input type="text"/> C											
<b>Read Attached Instructions Before Starting</b> <b>For Official Use Only</b>											
Application approved mo day year			Date received mo day year			Permit Number		Well ID		FINDS Number	
<input type="text"/>			<input type="text"/>			<input type="text"/>		<input type="text"/>		<input type="text"/>	
<b>II. Owner Name and Address</b>						<b>III. Operator Name and Address</b>					
<b>Owner Name</b> <input type="text"/> Petroglyph Energy, Inc.						<b>Owner Name</b> <input type="text"/> Petroglyph Energy, Inc.					
<b>Street Address</b> <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019				<b>Phone Number</b> <input type="text"/> (208) 685-7600		<b>Street Address</b> <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019				<b>Phone Number</b> <input type="text"/> (208) 685-7600	
<b>City</b> <input type="text"/> Boise			<b>State</b> <input type="text"/> ID		<b>ZIP CODE</b> <input type="text"/> 83707		<b>City</b> <input type="text"/> Boise			<b>State</b> <input type="text"/> ID	
<b>IV. Commercial Facility</b>			<b>V. Ownership</b>			<b>VI. Legal Contact</b>			<b>VII. SIC Codes</b>		
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator			<input type="text"/>		
<b>VIII. Well Status (Mark "x")</b>											
<input checked="" type="checkbox"/> A <input type="checkbox"/> Operating		<b>Date Started</b> mo day year <input type="text"/>			<input checked="" type="checkbox"/> B. Modification/Conversion <input type="checkbox"/>			<input type="checkbox"/> C. Proposed			
<b>IX. Type of Permit Requested (Mark "x" and specify if required)</b>											
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area			<b>Number of Existing Wells</b> <input type="text"/> 111			<b>Number of Proposed Wells</b> <input type="text"/> 1			<b>Name(s) of field(s) or project(s)</b> <input type="text"/> Antelope Creek <input type="text"/> Ute Tribal 08-11		
<b>X. Class and Type of Well (see reverse)</b>											
<b>A. Class(es)</b> (enter code(s))		<b>B. Type(s)</b> (enter code(s))		<b>C. If class is "other" or type is code 'x,' explain</b> <input type="text"/>					<b>D. Number of wells per type (if area permit)</b> <input type="text"/> 1 well, type R		
<input type="text"/> II		<input type="text"/> R									
<b>XI. Location of Well(s) or Approximate Center of Field or Project</b>											
<b>Latitude</b> Deg <input type="text"/> Min <input type="text"/> Sec <input type="text"/>			<b>Longitude</b> Deg <input type="text"/> Min <input type="text"/> Sec <input type="text"/>			<b>Township and Range</b> Sec <input type="text"/> Twp <input type="text"/> Range <input type="text"/> <input type="text"/> SW <input type="text"/> 1/4 Sec <input type="text"/> Feet From <input type="text"/> Line <input type="text"/> Feet From <input type="text"/> Line			<b>XII. Indian Lands (Mark 'x')</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
<b>XIII. Attachments</b>											
<i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.											
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<b>B. Phone No. (Area Code and No.)</b> <input type="text"/> (208) 685-7600											
<b>C. Signature</b> 											
<b>D. Date Signed</b> <input type="text"/> 07/27/2015											

 <p><b>United States Environmental Protection Agency</b>  <b>Underground Injection Control</b>  <b>Permit Application</b>  <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i></p>		I. EPA ID Number			
		U	T/A      C		
<b>Read Attached Instructions Before Starting For Official Use Only</b>					
Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707
IV. Commercial Facility	V. Ownership	VI. Legal Contact		VII. SIC Codes	
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	<input type="text"/>		
VIII. Well Status (Mark "x")					
<input checked="" type="checkbox"/> A Operating	Date Started mo day year <input type="text"/>	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed		
IX. Type of Permit Requested (Mark "x" and specify if required)					
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells <input type="text"/> 111	Number of Proposed Wells <input type="text"/> 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 08-12	
X. Class and Type of Well (see reverse)					
A. Class(es) (enter code(s)) <input type="text"/> II	B. Type(s) (enter code(s)) <input type="text"/> R	C. If class is "other" or type is code 'x,' explain <input type="text"/>		D. Number of wells per type (If area permit) 1 well, type R	
XI. Location of Well(s) or Approximate Center of Field or Project					XII. Indian Lands (Mark 'x') <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Latitude Deg <input type="text"/> Min <input type="text"/> Sec <input type="text"/>	Longitude Deg <input type="text"/> Min <input type="text"/> Sec <input type="text"/>	Township and Range Sec <input type="text"/> Twp <input type="text"/> Range <input type="text"/> 8 <input type="text"/> SS <input type="text"/> 3W <input type="text"/> SW <input type="text"/>		Feet From <input type="text"/>	Line <input type="text"/> Feet From <input type="text"/> Line <input type="text"/>
XIII. Attachments (Complete the following questions on a separate sheet(s) and number accordingly; see instructions) For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.					
XIV. Certification					
I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)					
A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations			B. Phone No. (Area Code and No.) <input type="text"/> (208) 685-7600		
C. Signature 			D. Date Signed <input type="text"/> 07/27/2015		

<b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>													
<i>Read Attached Instructions Before Starting</i> <b>For Official Use Only</b>													
Application approved mo day year			Date received mo day year			Permit Number			Well ID		FINDS Number		
<b>II. Owner Name and Address</b>													
Owner Name Petroglyph Energy, Inc.						Owner Name Petroglyph Energy, Inc.							
Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600			
City Boise		State ID		ZIP CODE 83707		City Boise		State ID		ZIP CODE 83707			
<b>IV. Commercial Facility</b>			<b>V. Ownership</b>			<b>VI. Legal Contact</b>			<b>VII. SIC Codes</b>				
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator							
<b>VIII. Well Status (Mark "x")</b>													
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed					
<b>IX. Type of Permit Requested (Mark "x" and specify if required)</b>													
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area			Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 09-01				
<b>X. Class and Type of Well (see reverse)</b>													
A. Class(es) (enter code(s)) II		B. Type(s) (enter code(s)) R		C. If class is "other" or type is code 'x,' explain					D. Number of wells per type (if area permit) 1 well, type R				
<b>XI. Location of Well(s) or Approximate Center of Field or Project</b>													
Latitude			Longitude			Township and Range							
Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Sec <input type="text"/>	Twp <input type="text"/>	Range <input type="text"/>	1/4 Sec <input type="text"/>	Feet From <input type="text"/>	Line <input type="text"/>	Feet From <input type="text"/>	Line <input type="text"/>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No													
<b>XIII. Attachments</b> <i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.													
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<b>A. Name and Title (Type or Print)</b> Kevin Dickey, Vice President, Operations													
<b>B. Phone No. (Area Code and No.)</b> (208) 685-7600													
<b>C. Signature</b> 													
<b>D. Date Signed</b> 07/27/2015													

<b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												I. EPA ID Number						
												T/A	C					
U																		
<b>Read Attached Instructions Before Starting For Official Use Only</b>																		
Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number						
II. Owner Name and Address										III. Operator Name and Address								
Owner Name Petroglyph Energy, Inc.										Owner Name Petroglyph Energy, Inc.								
Street Address 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number (208) 685-7600			Street Address 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number (208) 685-7600			
City Boise			State ID			ZIP CODE 83707			City Boise			State ID			ZIP CODE 83707			
IV. Commercial Facility				V. Ownership				VI. Legal Contact				VII. SIC Codes						
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No				<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other				<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator										
VIII. Well Status (Mark "x")																		
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed										
IX. Type of Permit Requested (Mark "x" and specify if required)																		
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 09-04								
X. Class and Type of Well (see reverse)																		
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain								D. Number of wells per type (if area permit)						
II		R										1 well, type R						
XI. Location of Well(s) or Approximate Center of Field or Project														XII. Indian Lands (Mark 'x')				
Latitude			Longitude			Township and Range										<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line					
						9	SS	3W	NW									
XIII. Attachments																		
(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)																		
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A. Name and Title (Type or Print)										B. Phone No. (Area Code and No.)								
Kevin Dickey, Vice President, Operations										(208) 685-7600								
C. Signature										D. Date Signed								
										07/27/2015								



United States Environmental Protection Agency  
**Underground Injection Control  
 Permit Application**

(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number		
U	T/A	C

**Read Attached Instructions Before Starting  
 For Official Use Only**

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707
IV. Commercial Facility		V. Ownership		VI. Legal Contact	
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other		<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	
VII. SIC Codes					

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A <input type="checkbox"/> B Operating	Date Started mo day year  111	<input checked="" type="checkbox"/> B. Modification/Conversion  1	<input type="checkbox"/> C. Proposed  Antelope Creek Ute Tribal 10-03

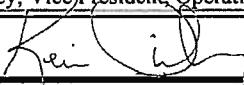
IX. Type of Permit Requested (Mark "x" and specify if required)					
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area		Number of Existing Wells 111		Number of Proposed Wells 1	
Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 10-03					

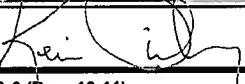
X. Class and Type of Well (see reverse)					
A. Class(es) (enter code(s))  II	B. Type(s) (enter code(s))  R	C. If class is "other" or type is code 'x,' explain  			D. Number of wells per type (if area permit) 1 well, type R

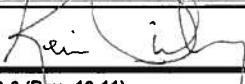
XI. Location of Well(s) or Approximate Center of Field or Project										XII. Indian Lands (Mark 'x')			
Latitude			Longitude			Township and Range							
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
						10	SS	3W	NW				
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No													

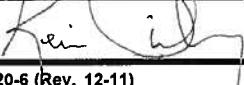
XIII. Attachments  (Complete the following questions on a separate sheet(s) and number accordingly; see instructions)  For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.												
--	--	--	--	--	--	--	--	--	--	--	--	--

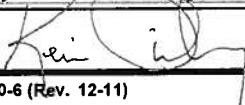
XIV. Certification  I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)												
A. Name and Title (Type or Print) Kevin Dickey, Vice-President, Operations												
B. Phone No. (Area Code and No.) (208) 685-7600												
C. Signature 												
D. Date Signed 07/27/2015												

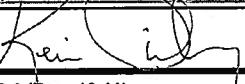
<b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>													
<b>Read Attached Instructions Before Starting For Official Use Only</b>													
Application approved mo day year			Date received mo day year			Permit Number		Well ID		FINDS Number			
II. Owner Name and Address						III. Operator Name and Address							
<b>Owner Name</b> Petroglyph Energy, Inc.						<b>Owner Name</b> Petroglyph Energy, Inc.							
Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600			
City Boise		State ID		ZIP CODE 83707		City Boise		State ID		ZIP CODE 83707			
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes				
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator							
VIII. Well Status (Mark "x")													
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed					
IX. Type of Permit Requested (Mark "x" and specify if required)													
<input type="checkbox"/> A. Individual			<input checked="" type="checkbox"/> B. Area		Number of Existing Wells 111		Number of Proposed Wells 1		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 17-04				
X. Class and Type of Well (see reverse)													
A. Class(es) (enter code(s))  II		B. Type(s) (enter code(s))  R		C. If class is "other" or type is code 'x,' explain				D. Number of wells per type (if area permit) 1 well, type R					
XI. Location of Well(s) or Approximate Center of Field or Project													
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
						17	5S	3W	NW				
XII. Indian Lands (Mark 'x')													
XIII. Attachments													
<i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.													
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C. Signature 						D. Date Signed 07/27/2015							

<b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												I. EPA ID Number					
												T/A		C			
U																	
<b>Read Attached Instructions Before Starting For Official Use Only</b>																	
Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number					
II. Owner Name and Address												III. Operator Name and Address					
Owner Name Petroglyph Energy, Inc.												Owner Name Petroglyph Energy, Inc.					
Street Address 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number (208) 685-7600			Street Address 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number (208) 685-7600		
City Boise			State ID		ZIP CODE 83707		City Boise			State ID		ZIP CODE 83707					
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes								
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator											
VIII. Well Status (Mark "x")																	
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed									
IX. Type of Permit Requested (Mark "x" and specify if required)																	
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area			Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 17-05								
X. Class and Type of Well (see reverse)																	
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain					D. Number of wells per type (if area permit) 1 well, type R								
II		R															
XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')					
Latitude			Longitude			Township and Range									<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line				
						17	5S	3W	NW								
XIII. Attachments																	
(Complete the following questions on a separate sheet(s) and number accordingly; see Instructions)																	
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Kevin Dickey, Vice President, Operations												(208) 685-7600					
C. Signature												D. Date Signed					
												07/27/2015					

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Application approved mo day year			Date received mo day year			Permit Number			Well ID		FINDS Number
<b>II. Owner Name and Address</b>											
Owner Name Petroglyph Energy, Inc.						Owner Name Petroglyph Energy, Inc.					
Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600	
City Boise		State ID		ZIP CODE 83707		City Boise		State ID		ZIP CODE 83707	
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes		
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator					
<b>VIII. Well Status (Mark "x")</b>											
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed			
<b>IX. Type of Permit Requested (Mark "x" and specify if required)</b>											
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area			Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 17-12		
<b>X. Class and Type of Well (see reverse)</b>											
A. Class(es) (enter code(s))  II		B. Type(s) (enter code(s))  R		C. If class is "other" or type is code 'x,' explain					D. Number of wells per type (if area permit) 1 well, type R		
<b>XI. Location of Well(s) or Approximate Center of Field or Project</b>											
Latitude			Longitude			Township and Range					
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line
						17	5S	3W	SW		
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No											
<b>XIII. Attachments</b> <i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i>											
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C. Signature 						D. Date Signed 07/27/2015					

<b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												<b>I. EPA ID Number</b>     					
												T/A	C				
												U					
<b>Read Attached Instructions Before Starting For Official Use Only</b>																	
<b>Application approved</b> mo day year			<b>Date received</b> mo day year			<b>Permit Number</b>			<b>Well ID</b>			<b>FINDS Number</b>					
<b>II. Owner Name and Address</b>												<b>III. Operator Name and Address</b>					
<b>Owner Name</b> Petroglyph Energy, Inc.												<b>Owner Name</b> Petroglyph Energy, Inc.					
<b>Street Address</b> 960 Broadway Ave. Suite 500 PO Box 70019						<b>Phone Number</b> (208) 685-7600			<b>Street Address</b> 960 Broadway Ave. Suite 500 PO Box 70019						<b>Phone Number</b> (208) 685-7600		
<b>City</b> Boise			<b>State</b> ID			<b>ZIP CODE</b> 83707			<b>City</b> Boise			<b>State</b> ID			<b>ZIP CODE</b> 83707		
<b>IV. Commercial Facility</b>				<b>V. Ownership</b>				<b>VI. Legal Contact</b>				<b>VII. SIC Codes</b>					
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No				<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other				<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator									
<b>VIII. Well Status (Mark "x")</b>																	
<input checked="" type="checkbox"/> A Operating		<b>Date Started</b> mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion						<input type="checkbox"/> C. Proposed						
<b>IX. Type of Permit Requested (Mark "x" and specify if required)</b>																	
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				<b>Number of Existing Wells</b> 111			<b>Number of Proposed Wells</b> 1			<b>Name(s) of field(s) or project(s)</b> Antelope Creek Ute Tribal 20-06							
<b>X. Class and Type of Well (see reverse)</b>																	
<b>A. Class(es)</b> (enter code(s))			<b>B. Type(s)</b> (enter code(s))			<b>C. If class is "other" or type is code 'x,' explain</b> II R						<b>D. Number of wells per type (if area permit)</b> 1 well, type R					
<b>XI. Location of Well(s) or Approximate Center of Field or Project</b>															<b>XII. Indian Lands (Mark 'x')</b>		
<b>Latitude</b> Deg Min Sec			<b>Longitude</b> Deg Min Sec			<b>Township and Range</b> Sec Twp Range 1/4 Sec Feet From Line Feet From Line						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
20 5S 3W NW																	
<b>XIII. Attachments</b> <i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.																	
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<b>A. Name and Title (Type or Print)</b> Kevin Dickey, Vice President, Operations												<b>B. Phone No. (Area Code and No.)</b> (208) 685-7600					
<b>C. Signature</b> 												<b>D. Date Signed</b> 07/27/2015					

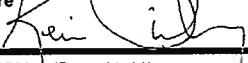
<b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												I. EPA ID Number					
												T/A      C					
<i>Read Attached Instructions Before Starting For Official Use Only</i>																	
Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number					
<input type="text"/>			<input type="text"/>			<input type="text"/>			<input type="text"/>			<input type="text"/>					
II. Owner Name and Address												III. Operator Name and Address					
<b>Owner Name</b> <input type="text"/> Petroglyph Energy, Inc.												<b>Owner Name</b> <input type="text"/> Petroglyph Energy, Inc.					
<b>Street Address</b> <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019						<b>Phone Number</b> <input type="text"/> (208) 685-7600			<b>Street Address</b> <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019						<b>Phone Number</b> <input type="text"/> (208) 685-7600		
<b>City</b> <input type="text"/> Boise			<b>State</b> <input type="text"/> ID			<b>ZIP CODE</b> <input type="text"/> 83707			<b>City</b> <input type="text"/> Boise			<b>State</b> <input type="text"/> ID			<b>ZIP CODE</b> <input type="text"/> 83707		
IV. Commercial Facility				V. Ownership				VI. Legal Contact				VII. SIC Codes					
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other				<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator				<input type="text"/>					
VIII. Well Status (Mark "x")																	
<input checked="" type="checkbox"/> A <input type="checkbox"/> Operating		<b>Date Started</b> mo day year <input type="text"/>			<input type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed									
IX. Type of Permit Requested (Mark "x" and specify if required)																	
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				<b>Number of Existing Wells</b> <input type="text"/> 111			<b>Number of Proposed Wells</b> <input type="text"/> 1			<b>Name(s) of field(s) or project(s)</b> <input type="text"/> Antelope Creek <input type="text"/> Ute Tribal 20-07							
X. Class and Type of Well (see reverse)																	
<b>A. Class(es)</b> (enter code(s))		<b>B. Type(s)</b> (enter code(s))		<b>C. If class is "other" or type is code 'x,' explain</b> <input type="text"/>								<b>D. Number of wells per type (if area permit)</b> <input type="text"/> 1 well, type R					
<input type="text"/> II		<input type="text"/> R		<input type="text"/>								<input type="text"/>					
XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')					
<b>Latitude</b> Deg <input type="text"/> Min <input type="text"/> Sec			<b>Longitude</b> Deg <input type="text"/> Min <input type="text"/> Sec			<b>Township and Range</b> Sec <input type="text"/> Twp <input type="text"/> Range <input type="text"/> <input type="text"/> NE			1/4 Sec <input type="text"/> Feet From <input type="text"/> Line <input type="text"/> Line <input type="text"/> Feet From <input type="text"/> Line			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
XIII. Attachments																	
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<b>C. Signature</b> 												<b>D. Date Signed</b> <input type="text"/> 07/27/2015					

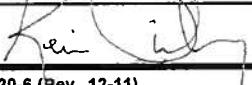
<b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>														
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Application approved mo day year			Date received mo day year			Permit Number		Well ID		FINDS Number				
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Owner Name Petroglyph Energy, Inc.						Owner Name Petroglyph Energy, Inc.								
Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600				
City Boise		State ID		ZIP CODE 83707		City Boise		State ID		ZIP CODE 83707				
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes					
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator								
VIII. Well Status (Mark "x")														
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed						
IX. Type of Permit Requested (Mark "x" and specify if required)														
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area			Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 20-11					
X. Class and Type of Well (see reverse)														
A. Class(es) (enter code(s))  II		B. Type(s) (enter code(s))  R		C. If class is "other" or type is code 'x,' explain				D. Number of wells per type (if area permit) 1 well, type R						
XI. Location of Well(s) or Approximate Center of Field or Project														
Latitude			Longitude			Township and Range							<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line	
						20	SS	3W	SW					
XII. Indian Lands (Mark 'x')														
XIII. Attachments														
<p><i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i></p> <p>For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.</p>														
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C. Signature 						D. Date Signed 07/27/2015								

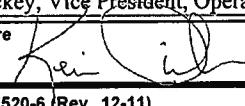
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<b>Owner Name</b> Petroglyph Energy, Inc.														
Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600			Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600			
City Boise			State ID	ZIP CODE 83707			City Boise			State ID	ZIP CODE 83707			
<b>IV. Commercial Facility</b>			<b>V. Ownership</b>			<b>VI. Legal Contact</b>			<b>VII. SIC Codes</b>					
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator								
<b>VIII. Well Status (Mark "x")</b>														
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed						
<b>IX. Type of Permit Requested (Mark "x" and specify if required)</b>														
<input type="checkbox"/> A. Individual			<input checked="" type="checkbox"/> B. Area		Number of Existing Wells 111		Number of Proposed Wells 1		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 20-15					
<b>X. Class and Type of Well (see reverse)</b>														
A. Class(es) (enter code(s))  II		B. Type(s) (enter code(s))  R		C. If class is "other" or type is code 'x,' explain				D. Number of wells per type (if area permit) 1 well, type R						
<b>XI. Location of Well(s) or Approximate Center of Field or Project</b>														
Latitude			Longitude			Township and Range							<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line	
						20	SS	3W	SE					
<b>XII. Indian Lands (Mark 'x')</b>														
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C. Signature 						D. Date Signed 07/27/2015								

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Application approved mo day year			Date received mo day year			Permit Number		Well ID		FINDS Number			
II. Owner Name and Address						III. Operator Name and Address							
Owner Name Petroglyph Energy, Inc.						Owner Name Petroglyph Energy, Inc.							
Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600			
City Boise			State ID	ZIP CODE 83707		City Boise			State ID	ZIP CODE 83707			
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes				
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator							
VIII. Well Status (Mark "x")													
<input checked="" type="checkbox"/> A Operating		Date Started mo day year		<input checked="" type="checkbox"/> B. Modification/Conversion				<input type="checkbox"/> C. Proposed					
IX. Type of Permit Requested (Mark "x" and specify if required)													
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells 111		Number of Proposed Wells 1		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 31-03					
X. Class and Type of Well (see reverse)													
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain				D. Number of wells per type (if area permit) 1 well, type R					
II		R											
XI. Location of Well(s) or Approximate Center of Field or Project													
Latitude			Longitude			Township and Range							
Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Sec 31	Twp 5S	Range 3W	1/4 Sec NW	Feet From <input type="text"/>	Line <input type="text"/>	Feet From <input type="text"/>	Line <input type="text"/>
XII. Indian Lands (Mark 'x')													
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No													
XIII. Attachments													
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C. Signature 													
D. Date Signed <input type="text"/> 07/27/2015													

United States Environmental Protection Agency Underground Injection Control Permit Application (Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)										I. EPA ID Number	T/A	C																	
										U																			
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Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number																	
<b>II. Owner Name and Address</b>										<b>III. Operator Name and Address</b>																			
Owner Name Petroglyph Energy, Inc.										Owner Name Petroglyph Energy, Inc.																			
Street Address 960 Broadway Ave. Suite 500 PO Box 70019					Phone Number (208) 685-7600					Street Address 960 Broadway Ave. Suite 500 PO Box 70019					Phone Number (208) 685-7600														
City Boise					State ID					ZIP CODE 83707					City Boise					State ID					ZIP CODE 83707				
<b>IV. Commercial Facility</b>					<b>V. Ownership</b>					<b>VI. Legal Contact</b>					<b>VII. SIC Codes</b>														
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other					<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator																			
<b>VIII. Well Status (Mark "x")</b>																													
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion				<input type="checkbox"/> C. Proposed																				
<input type="checkbox"/> A. Individual		<input checked="" type="checkbox"/> B. Area			Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 31-05																		
<b>X. Class and Type of Well (see reverse)</b>																													
A. Class(es) (enter code(s))			B. Type(s) (enter code(s))			C. If class is "other" or type is code 'x,' explain						D. Number of wells per type (if area permit) 1 well, type R																	
II			R																										
<b>XI. Location of Well(s) or Approximate Center of Field or Project</b>													<b>XII. Indian Lands (Mark 'x')</b>																
Latitude			Longitude			Township and Range												<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No											
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line																
						31	5S	3W	NW																				
<b>XIII. Attachments</b>																													
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City <input type="text"/> Boise			State <input type="text"/> ID			ZIP CODE <input type="text"/> 83707			City <input type="text"/> Boise			State <input type="text"/> ID			ZIP CODE <input type="text"/> 83707							
<b>IV. Commercial Facility</b>				<b>V. Ownership</b>				<b>VI. Legal Contact</b>				<b>VII. SIC Codes</b>										
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No				<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other				<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator				<input type="text"/>										
<b>VIII. Well Status (Mark "x")</b>																						
<input checked="" type="checkbox"/> A <small>Operating</small>		Date Started mo day year <input type="text"/>			<input checked="" type="checkbox"/> B. Modification/Conversion  			<input type="checkbox"/> C. Proposed														
<b>IX. Type of Permit Requested (Mark "x" and specify if required)</b>																						
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells <input type="text"/> 111			Number of Proposed Wells <input type="text"/> 1			Name(s) of field(s) or project(s) <input type="text"/> Antelope Creek <input type="text"/> Ute Tribal 31-07												
<b>X. Class and Type of Well (see reverse)</b>																						
A. Class(es) (enter code(s))  <input type="text"/> II		B. Type(s) (enter code(s))  <input type="text"/> R		C. If class is "other" or type is code 'x,' explain  <input type="text"/>								D. Number of wells per type (if area permit)  <input type="text"/> 1 well, type R										
<b>XI. Location of Well(s) or Approximate Center of Field or Project</b>																						
Latitude			Longitude			Township and Range												<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Sec <input type="text"/> 31	Twp <input type="text"/> 5S	Range <input type="text"/> 3W	1/4 Sec <input type="text"/> NE	Feet From <input type="text"/>	Line <input type="text"/>	Feet From <input type="text"/>	Line <input type="text"/>									
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City Boise			State ID		ZIP CODE 83707		City Boise			State ID		ZIP CODE 83707					
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes								
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator											
VIII. Well Status (Mark "x")																	
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IX. Type of Permit Requested (Mark "x" and specify if required)																	
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 31-12							
X. Class and Type of Well (see reverse)																	
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain					D. Number of wells per type (if area permit) 1 well, type R								
II		R															
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Latitude			Longitude			Township and Range									<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
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XIII. Attachments																	
<i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.																	
XIV. Certification																	
I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)																	
A. Name and Title (Type or Print)												B. Phone No. (Area Code and No.)					
Kevin Dickey, Vice President, Operations												<input type="text" value="Area Code and No."/> <input type="text" value="208 685-7600"/>					
C. Signature												D. Date Signed					
												<input type="text" value="07/27/2015"/>					

<b>United States Environmental Protection Agency</b> <b>Underground Injection Control</b> <b>Permit Application</b> <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												<b>I. EPA ID Number</b>				
												T/A	C			
												U				
<b>Read Attached Instructions Before Starting For Official Use Only</b>																
Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number				
<b>II. Owner Name and Address</b>										<b>III. Operator Name and Address</b>						
Owner Name Petroglyph Energy, Inc.										Owner Name Petroglyph Energy, Inc.						
Street Address 960 Broadway Ave. Suite 500 PO Box 70019					Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019					Phone Number (208) 685-7600				
City Boise			State ID		ZIP CODE 83707		City Boise			State ID		ZIP CODE 83707				
<b>IV. Commercial Facility</b>			<b>V. Ownership</b>			<b>VI. Legal Contact</b>			<b>VII. SIC Codes</b>							
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator										
<b>VIII. Well Status (Mark "x")</b>																
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed								
<b>IX. Type of Permit Requested (Mark "x" and specify if required)</b>																
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 36-08-E4						
<b>X. Class and Type of Well (see reverse)</b>																
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain						D. Number of wells per type (if area permit)						
II		R								1 well, type R						
<b>XI. Location of Well(s) or Approximate Center of Field or Project</b>														<b>XII. Indian Lands (Mark 'x')</b>		
Latitude			Longitude			Township and Range										<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line			
						36	5S	4W	NE							
<b>XIII. Attachments</b>																
(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)																
For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.																
<b>XIV. Certification</b>																
I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)																
<b>A. Name and Title (Type or Print)</b> Kevin Dickey, Vice President, Operations														<b>B. Phone No. (Area Code and No.)</b> (208) 685-7600		
<b>C. Signature</b> 														<b>D. Date Signed</b> 07/27/2015		

**ATTACHMENT NO. 10**

**WELL BORE DIAGRAMS FOR THE UIC WELL**

# Ute Tribal 03-05 Well History

## Well History:

Spud Well: 6/30/2010  
 Completed: 7/26/2010  
 First Production: 7/27/2010

## Tops (KB):

### BMSW\* Found at 923' MD, 922' TVD

Green River 1471' MD, 1462' TVD

### A Marker 4207' MD, 4169' TVD

X Marker 4704' MD, 4665' TVD

Douglas Creek 4856' MD, 4817' TVD

B Limestone 5259' MD, 5220' TVD

Castle Peak 5762' MD, 5723' TVD

### Basal Carbonate 6190' MD, 6150' TVD

## Perf History:

7/15/2010 (MD)

B05	4351' to 4363'
C08.1	5121' to 5130'
D3	5336' to 5352'
E01.1	5825' to 5836'
E06	6093' to 6101'

Petroglyph Operating Co., Inc.

Ute Tribal #03-05

SHL: Lot 12, 2871' FNL & 752' FWL

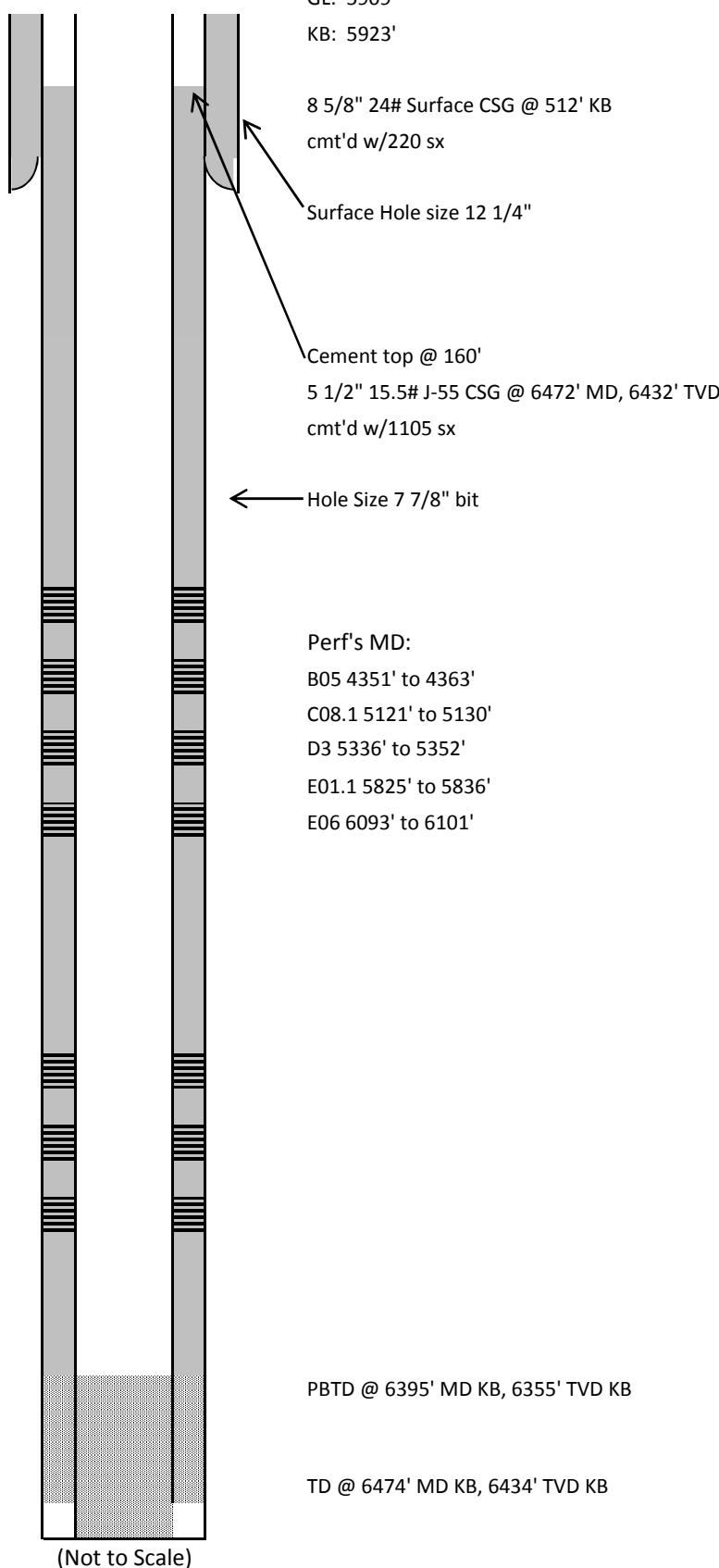
BHL: Lot 12, 2340' FNL & 684' FWL

Section 3, 5S- 3W

Antelope Creek Field

Duchesne Co. Utah

API#: 43013342890000



\*Plate 1 Utah Geological Survey Special Study 144.  
 (2012). *BMSW Elevation Contour Map, Uinta Basin, Utah, Plate 1* [map]. (CA 1:200,000)

## Ute Tribal 03-05 Injection

### Well History:

Spud Well: 6/30/2010  
 Completed: 7/26/2010  
 First Production: 7/27/2010

### Tops (KB)

#### BMSW\* Found at 923' MD, 922' TVD

Green River 1471' MD, 1462' TVD

#### A Marker 4207' MD, 4169' TVD

X Marker 4704' MD, 4665' TVD

Douglas Creek 4856' MD, 4817' TVD

B Limestone 5259' MD, 5220' TVD

Castle Peak 5762' MD, 5723' TVD

#### Basal Carbonate 6190' MD, 6150' TVD

GL: 5909'

KB: 5923'

8 5/8" 24# Surface CSG @ 512' KB

cmt'd w/220 sx

Surface Hole size 12 1/4"

Hole Size 7 7/8" bit

Cement top @ 160'

5 1/2" 15.5# J-55 CSG @ 6472' MD, 6432' TVD

cmt'd w/1105 sx

Tubing 2 7/8" 6.5# J55

Injection Packer @ 4261' MD, 4222' TVD

Perf's MD:

B05 4351' to 4363'

Add B07.2 4505' to 4508'

Add C4 4883' to 4885'

C08.1 5121' to 5130'

D3 5336' to 5352'

E01.1 5825' to 5836'

Add E01.2 5858' to 5860

E06 6093' to 6101'

Petroglyph Operating Co., Inc.

Ute Tribal #03-05

SHL: Lot 12, 2871' FNL & 752' FWL

BHL: Lot 12, 2340' FNL & 684' FWL

Section 3, 5S- 3W

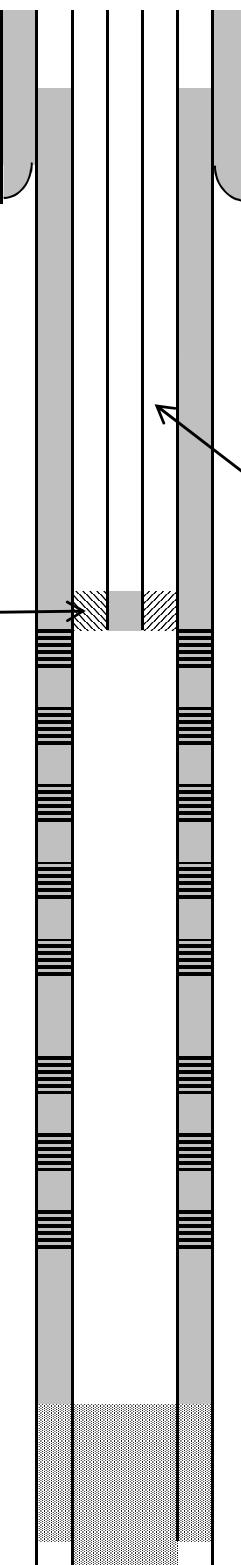
Antelope Creek Field

Duchesne Co. Utah

API#: 43013342890000

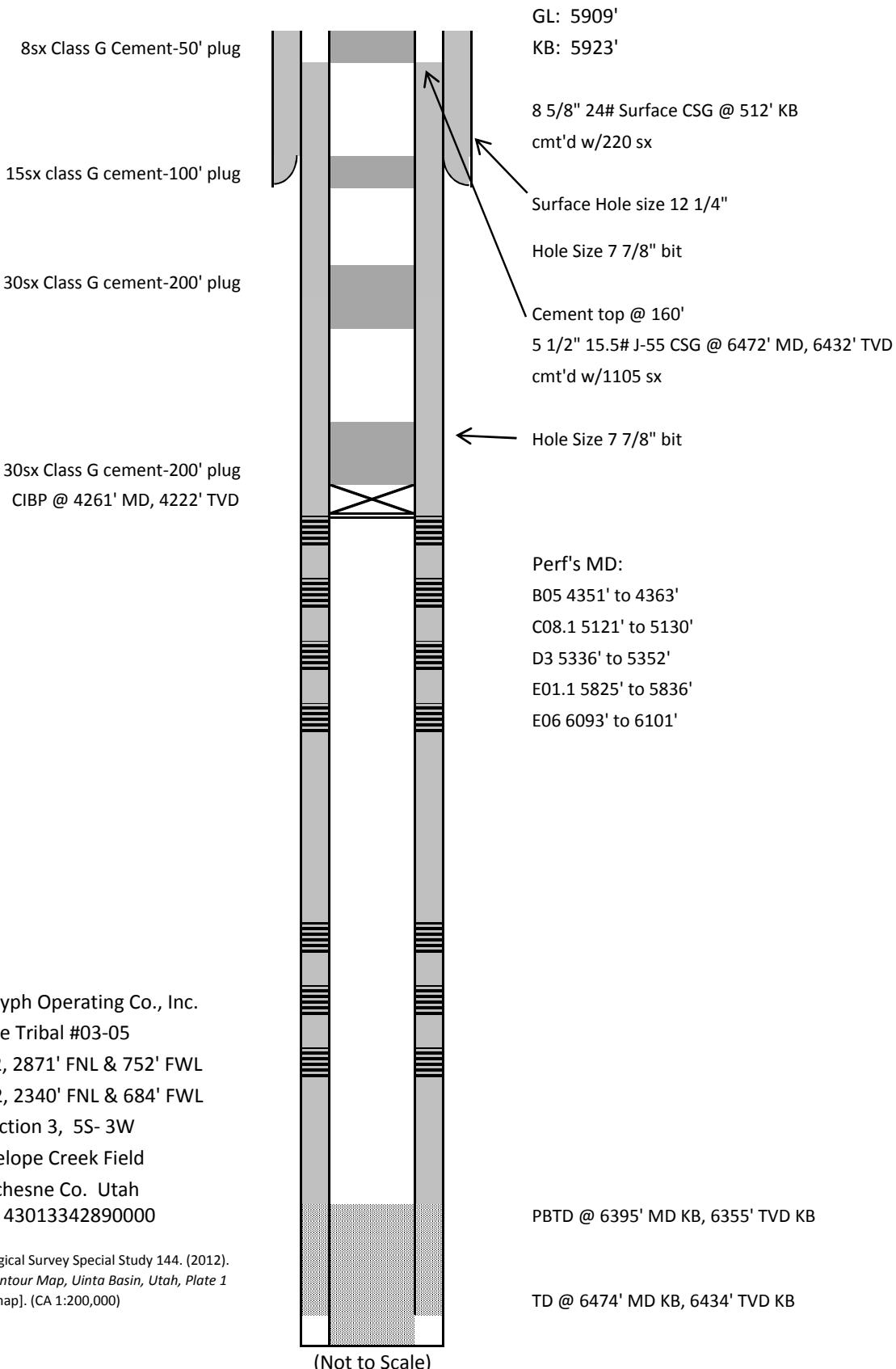
PBTD @ 6395' MD KB, 6355' TVD KB

TD @ 6474' MD KB, 6434' TVD KB



\*Plate 1 Utah Geological Survey Special Study 144.  
 (2012). *BMSW Elevation Contour Map, Uinta Basin, Utah, Plate 1* [map]. (CA 1:200,000)

## Ute Tribal 03-05 Plug and Abandonment



**ATTACHMENT NO. 11**

**P&A PROCEDURE**

## **Plug and Abandonment Procedure**

**Ute Tribal 03-05**

**43-013-34289**

1. Obtain authorization from regulatory agencies for P&A procedures.
2. Set deadman. Rig up pulling unit. Rig down wellhead. Install BOP. Release packer. Trip out of hole with tubing and packer.
3. RIH Set CIBP @ 4261'.
4. Trip in hole with tubing. Establish pump rate, spot 30sxs Class G cement on top of CIBP. This will be a 200' plug.
5. Raise the tubing to 1875' and set balanced 200' cement plug using 30sxs of Class G cement.
6. Raise the tubing to 512' and set balanced 100' cement plug using 15sxs of Class G cement.
7. Set balanced 50' cement plug (8 sxs of Class G cement) from 50' to surface.
8. Cut off wellhead. Install plate and identification P&A post marker. Weld to casing.
9. File reports with the agencies and reclaim surface locations.

**ATTACHMENT NO. 12**

**MIT PROCEDURE**

## **Mechanical Integrity Test Procedure**

**Ute Tribal 03-05**

**43-013-34289**

Integrity testing can be accomplished by pressuring up the annulus between the casing and the tubing. The pressure and duration of the test will be as required by the EPA.

### **Test Procedure Details:**

1. Two weeks prior, notify EPA of pending work. Shut well in.
2. Record fluid level with echometer.
3. MIRU Service Unit.
4. POOH laying down rods and pump.
5. ND Wellhead. NU BOPs. POOH laying down 2 7/8" tubing.
6. RU Wireline. Add new perfs: B07.2 4505' to 4508', C04 4883' to 4885', and E01.2 5858' to 5860' .
7. RD Wireline.
8. PU plug and packer and new tubing. RIH and breakdown perfs.
9. POOH. RIH with injection packer to 4261'.
10. Reverse circulate in packer fluid.
11. Set packer and ND BOPs and NU wellhead.
12. Pressure test casing-tubing annulus to 1500psi for 15 minutes.
13. RDMO.
14. Notify EPA of test, wait for approval.
15. Return to injection.

**ATTACHMENT NO. 13**  
**SURETY BOND LETTER**

**SURETY BOND STATEMENT**

July 27, 2015

Petroglyph currently operates 111 injection wells in Antelope Creek Field under EPA UIC Area Permit UT2736-00000. The existing wells are covered by UIC Bond No. LPM 4138351.

Prior to final permit approval, Petroglyph will add a rider to the existing bond to include this well along with the other wells being submitted to EPA at this time.

Kevin Dickey

V.P., Operations

Petroglyph Energy, Inc.

**PETROGLYPH OPERATING COMPANY, INC.**